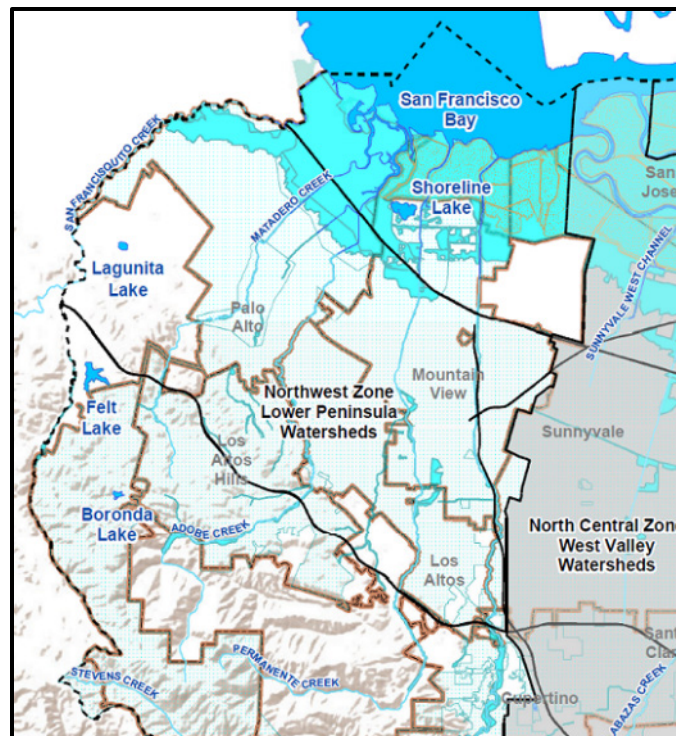


EMERGENCY ACTION PLAN FOR SEVERE STORM AND FLOOD RESPONSE LOWER PENINSULA WATERSHED



December 2023

SANTA CLARA VALLEY WATER DISTRICT

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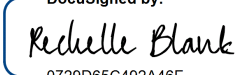
APPROVAL & IMPLEMENTATION

The Emergency Action Plan for Severe Storm and Flood Response in the Lower Peninsula Watershed (EAP) prepared and updated by the Santa Clara Valley Water District (Valley Water) is hereby approved for implementation. This plan, which includes a Appendices with more specific guidance for San Francisquito Creek, Palo Alto Flood Basin, and Permanente and Hale Creeks, shall be reviewed and updated annually as necessary in coordination with other affected Valley Water divisions/units and, if appropriate, external stakeholders. While this EAP provides specific guidance for storm and flood response for San Francisquito Creek, additional guidance for San Francisquito Creek is provided in a separate San Francisquito Creek Multi-Agency Coordination Operations Plan for Severe Storm and Flood Response (SFC MAC) that was prepared and adopted by the San Francisquito Creek Joint Powers Authority (SFCJPA) and their member agencies, which includes Valley Water.

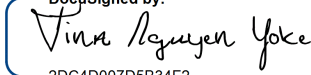
This plan uses resources currently available to Valley Water and does not obligate other stakeholders. It is intended to provide guidance on how Valley Water will coordinate, communicate, and make decisions for preparation and response to storm and flood events. It is not intended to prescribe responsibilities or actions nor constrain the freedom of Valley Water during any phase of operations.

Valley Water's Chief Executive Officer has assigned oversight of emergency management to the Chief Operating Officer (COO) of Administrative Services and management of activities relating to creeks in the Lower Peninsula Watershed to the COO of Watersheds. Approval and implementation of this EAP is the responsibility of these COOs.

By signing here, the COOs agree to the concepts outlined in this EAP and will continue work on maintaining the EAP, and provide appropriate risk-based resources for preparedness, mitigation and response to ensure business interruption is minimized and Valley Water's services remain reliable to its customers.

DocuSigned by:

0729D65C492A46F...
Rechelle Blank, P.E.
Chief Operating Officer,
Watersheds

7/7/2022
DATE

DocuSigned by:

2DC4D007D5B34F2...
Tina Nguyen Yoke
Chief Operating Officer,
Administrative Services

7/7/2022
DATE

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ACRONYMS

Readers of this plan may find it useful to be familiar with the Acronyms used in the document.

Acronym	What is it
AAR	After-Action Report
ALERT	Automated Local Evaluation in Real Time
Alert SCC	Alert Santa Clara County
AP	Action Plan
County	Santa Clara County
DOC	Departmental Operations Center
EAP	Emergency Action Plan for Severe Storm and Flood Response in Lower Peninsula Watershed
EOC	Emergency Operations Center
EOP	Emergency Operations Plan
FEMA	Federal Emergency Management Agency
FIT	Field Information Team
HH&G	Hydrology, Hydraulics & Geomorphology Unit
IC	Incident Command(er)
ICS	Incident Command System
IPAWS	Integrated Public Alert & Warning System
JIC	Joint Information Center
JIS	Joint Information System
MAC	Multi-Agency Coordination
NIMS	National Incident Management System
NWS	National Weather Service
OC	Office of Communications
OES	Office of Emergency Services
O&M	Watersheds Operations & Maintenance Division
O&MES	Watersheds Operations & Maintenance Engineering Support Unit
PIO	Public Information Officer
SEMS	Standardized Emergency Management System
SFCJPA	San Francisquito Creek Joint Powers Agency
SFC MAC	San Francisquito Creek Multi-Agency Coordination
SME	Subject Matter Expert
VFOU	Vegetation Field Operations Unit
WFOU	Watersheds Field Operations Unit

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GLOSSARY OF TERMS

Readers of this plan may find it useful to understand some terms that may be used in the Emergency Action Plan or may be used before or during an event or training exercise.

TERM	DEFINITION
After-Action Report (AAR)	An After-Action Report (AAR) is the final product of an exercise or actual event. The AAR has three components: <ol style="list-style-type: none"> 1. Summary of exercise objectives and actual events; 2. Observations and recommendations based on the exercise objectives or actual event as associated with the capabilities and tasks; and 3. A section that identifies specific corrective/improvement recommendations.
Boil/Seepage	When the floodwaters are higher than the land, the groundwater, under pressure from the river, exerts an upward pressure on the land inside the levee or floodwall. With time this increased “head pressure,” as it is known to engineers, can drive water through or under a levee/floodwall to the surface as seepage. When floodwaters remain high for a long time though, seepage can increase in volume and velocity and begin the destructive process of moving sand/soil from the foundation, through the ground, to the surface, forming boils.
Channel Capacity	The maximum flow which can pass through a channel without overflowing the banks.
Channel Improvements or Channelization	The improvement of the water carrying capacity or flow characteristics of a natural or artificial channel by clearing, excavation, bank stabilization, or other means. Also referred to as channel alterations.
Collaboration Software	Collaboration software enables the sharing, processing, and management of files, documents, and other data types among several users and/or systems. This type of software allows two or more remote users to jointly work on a task or project and/or to view the same data.
Community Rating System (CRS)	A program developed by FEMA to provide incentives for those communities in the Regular Program that have gone beyond the minimum floodplain management requirements to develop extra measures to provide protection from flooding.
Critical Facility	For some activities and facilities, even a slight chance of flooding is too great a threat. Typical critical facilities include hospitals, fire stations, police stations, storage of critical records, and similar facilities. These facilities should be given special consideration when formulating regulatory alternatives and floodplain management plans. A critical facility should not be located in a floodplain if at all possible.
Cubic Feet per Second (CFS)	The rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and equivalent to 7.48 gallons per second or 448.8 gallons per minute.
Design	The term “design flood” is used to denote the maximum flood flow used for design and operation of flood control structures and other protective measures. The Design is often set as the 100-year or 1% flow rate, but it may be set at other levels.

TERM	DEFINITION
Design Stage	The term “design stage” is used to denote the maximum level (generally denoted in feet) above the channel bottom or above sea level at the specific location for which flood control structures and other protective measures are designed. The design stage is based on a Design that is often set as the 100-year or 1% flow rate, but it may be set at other levels.
Design Storm	Design storm means a hypothetical discrete rainstorm characterized by a specific duration, temporal distribution, rainfall intensity, return frequency, and total depth of rainfall.
Discharge	The amount of water that passes a point in a given period of time. Rate of discharge is usually measured in cubic feet per second (cfs).
Emergency Communications Plan	An emergency communications plan (EC plan) is a document that provides guidelines, contact information, and procedures for how information should be shared during all phases of an unexpected occurrence that requires immediate action.
Erosion	The collapse, undermining, or subsidence of land along the bank of a body of water. Erosion is caused by waves or currents of water and can result in flooding or failure of adjacent structures.
Federal Emergency Management Agency (FEMA)	The Federal agency under which the National Flood Insurance Program (NFIP) is administered. In March 2003, FEMA became part of the newly created U.S. Department of Homeland Security. An agency within the U.S. Department of Homeland Security charged with responding to Presidentially declared disasters.
Flash Flood or Flashy System	A flood that reaches its peak flow in a short length of time (hours or minutes) after the storm or other event causing it. Often occurs in watersheds with mostly storm drain runoff and is often characterized by high-velocity flows.
Flood Control	Keeping flood waters away from specific developments and/or populated areas by the construction of flood storage reservoirs, channel alterations, dikes and levees, bypass channels, or other engineering works.
Flood Fighting	Actions taken immediately before or during a flood to protect human life and to reduce flood damages such as evacuation, emergency sandbagging and diking, and provision of assistance to flood victims.
Flood Flow	The discharge at which a body of water begins to flow over its banks and onto dry land, usually expressed in cubic feet per second (cfs).
Flood Forecasting	The process of predicting the occurrence, magnitude, and duration of an imminent flood through meteorological and hydrological observations and analysis.
Flood Frequency	A statistical expression of the average time period between floods equaling or exceeding a given magnitude. For example, a 100-year flood has a magnitude expected to be equaled or exceeded on the average of once every 100 years; such a flood has a 1% chance of being equaled or exceeded in any given year. Often used interchangeably with “recurrence interval”.
Flood Insurance Rate Map (FIRM)	An official map of a community on which the Federal Insurance Administration has delineated the area in which the purchase of flood insurance is required under the National Flood Insurance Program.

TERM	DEFINITION
Flood Stage	The level at which a body of water begins to flow over its banks and onto dry land, usually expressed in feet above channel bottom or above sea level at a specific location.
Flooding – Fluvial or Riverine	Fluvial, or riverine flooding, occurs when excessive rainfall over an extended period of time causes a river to exceed its capacity.
Flooding – Surface or Local Drainage	When rain hits the ground quicker than it can drain or flow away, water builds up and develops the potential to flood streets and properties. In some places, it forms isolated puddles in ground depressions and in others it accumulates and flows downhill towards streams. Typically, surface water flood events have localized effects, impacting properties in close proximity to where the rain fell and for a short amount of time until it can drain into a stream, be pumped into a stream, percolate into the ground, or evaporate.
Floodplain	Any land area susceptible to being inundated by floodwaters from any source. The channel of a stream or watercourse is part of the floodplain.
Floodplain Management	The operation of an overall program of corrective and preventive measures for reducing flood damage, including but not limited to, emergency preparedness plans, flood-control works, and floodplain management regulations. Floodplain management is a decision-making process that aims to achieve the wise use of the nation's floodplains. "Wise use" means both reduced flood losses and protection of the natural resources and function of floodplains.
Floodplain Management Regulations	A general term for the full range of codes, ordinances, and other regulations relating to the use of land and construction within stream channels and floodplain areas. The term encompasses zoning ordinances, subdivision regulations, building and housing codes, encroachment line statutes, open-space regulations, and other similar methods of control affecting the use and development of these areas.
Freeboard	A margin of safety added to the flood elevation to account for waves, debris, miscalculations, or lack of data. This term is often used when describing distance of the water surface to top of bank of a stream or in determining the level at which a structure's lowest floor must be elevated or floodproofed to be in accordance with state or community floodplain management regulations.
High Flow Stage	The depth of water when a stream flood control facility is nearing Flood Stage or Design stage.
Incident Commander	The Incident Commander is the individual responsible for all incident response activities, including the development of strategies and tactics and the ordering and release of resources. The Incident Commander has overall authority and responsibility for conducting incident operations and is responsible for the management of all incident operations at the incident site.
Levee or Dike	Permanent or temporary mounds of earth (often engineered with maintenance roads on top) and/or fill, such as sand, sandbags or gravel, piled along a body of water to prevent it from overflowing onto dry land.
Long Range Acoustical Device (LRAD)	LRAD is a high-powered speaker system that emits a shrill sound followed by spoken instructions such as "shelter in place" or "flooding is imminent, evacuate now". The speakers are strategically mounted to cover wide areas as needed. This system cannot only wake you up but inform you as to what's going on.

TERM	DEFINITION
Multi-Agency Coordination (MAC)	The primary function of MAC is to coordinate activities above the field level and to prioritize the incident demands for critical or competing resources, thereby assisting the coordination of the operations in the field. A MAC consists of a combination of elements: personnel, procedures, protocols, business practices, and communications integrated into a common system. For the purpose of coordinating resource and support between multiple jurisdictions, a MAC can be implemented from a fixed facility or by other arrangements outlined within the system.
National Flood Insurance Program (NFIP)	The program of flood insurance coverage and floodplain management administered under the Act and applicable federal regulations promulgated in Title 44 of the Code of Federal Regulations, Subchapter B.
Recovery Activities	Activities that include the development, coordination, and execution of service- and site-restoration plans; the reconstitution of government operations and services; individual, private-sector, nongovernmental, and public-assistance programs to provide housing and to promote restoration; long-term care and treatment of affected persons; additional measures for social, political, environmental, and economic restoration; evaluation of the incident to identify lessons learned; post-incident reporting; and development of initiatives to mitigate the effects of future incidents.
Stage or Gauge Height	The water-surface elevation referred to some arbitrary datum. The stage or gauge height represents the water-surface elevation above the channel bottom elevation at a specific location. For example, the elevation of the datum (channel bottom) of the gauge might be 100.00 feet, which, when added to a stage of 12.50 feet, represents a water-surface elevation of 112.50 feet at that location.
Top of Bank	Top of Bank means the point along the bank of a stream where an abrupt change in slope is evident, and where the stream is generally able to overflow the banks and enter the adjacent floodplain during an annual flood event. For steep and narrow valleys, it will generally be the same as the top of slope.
Unified Command	A unified command is established when incidents under an area command are multi-jurisdictional. It is a method for all agencies or individuals who have jurisdictional responsibility, or in some cases who have functional responsibilities at the incident, to contribute to: determination of overall objectives for the incident, and selection of strategies to achieve the objectives.

RECORD OF HOLDERS OF CONTROL COPIES OF THIS EMERGENCY ACTION PLAN

Copy Number	Unit/Location	Person Receiving Copy	Date
1	Office of Chief Operating Officer – Watersheds	Rechelle Blank	
2	Office of Chief Operating Officer – Information Technology & Administrative Services	Tina Yoke	
3	Watersheds Operations & Maintenance Deputy Operating Officer	Jennifer Codianne	
4	Watersheds O&M Engineering Support	Devin Mody	
5	Watersheds Field Operations	Jay Lee	
6	Watersheds O&M Engineering Support	Greg Meamber	
7	Security Office	Security Office - James Randol	
8	Departmental Operations Center (DOC)	DOC Files/Library	
9	Emergency Operations Center	Alexander Gordon	
10	Hydrology, Hydraulics & Geomorphology	Liang Xu	
11	Office of Communications	Linh Hoang	
12	City of Mountain View	Fire Department - Office of Emergency Services	
13	City of Los Altos	Police Department - Emergency Management	
14	City of Los Altos	Jon Biggs - Community Development	
15	City of Palo Alto – EOC Operations	Ken Dueker	
16	San Francisquito Creek Joint Powers Authority	Margaret Bruce, Executive Director SFCJPA	

RECORD OF REVISIONS AND UPDATES MADE TO EMERGENCY ACTION PLAN

Revision Number	Date	Revision Made	By Whom
1	05/11/22	Updated names and phone numbers, included Tsunami as an Event, and added Palo Alto Flood Basin Appendix	Office of Emergency Services
2	07/14/22	Updated names and phone numbers, added signed Approval & Implementation page	Office of Emergency Services
3	12/01/23	Minor changes to update web-based data sources, contacts and phone numbers, sandbag map, and public information flyer.	Office of Emergency Services

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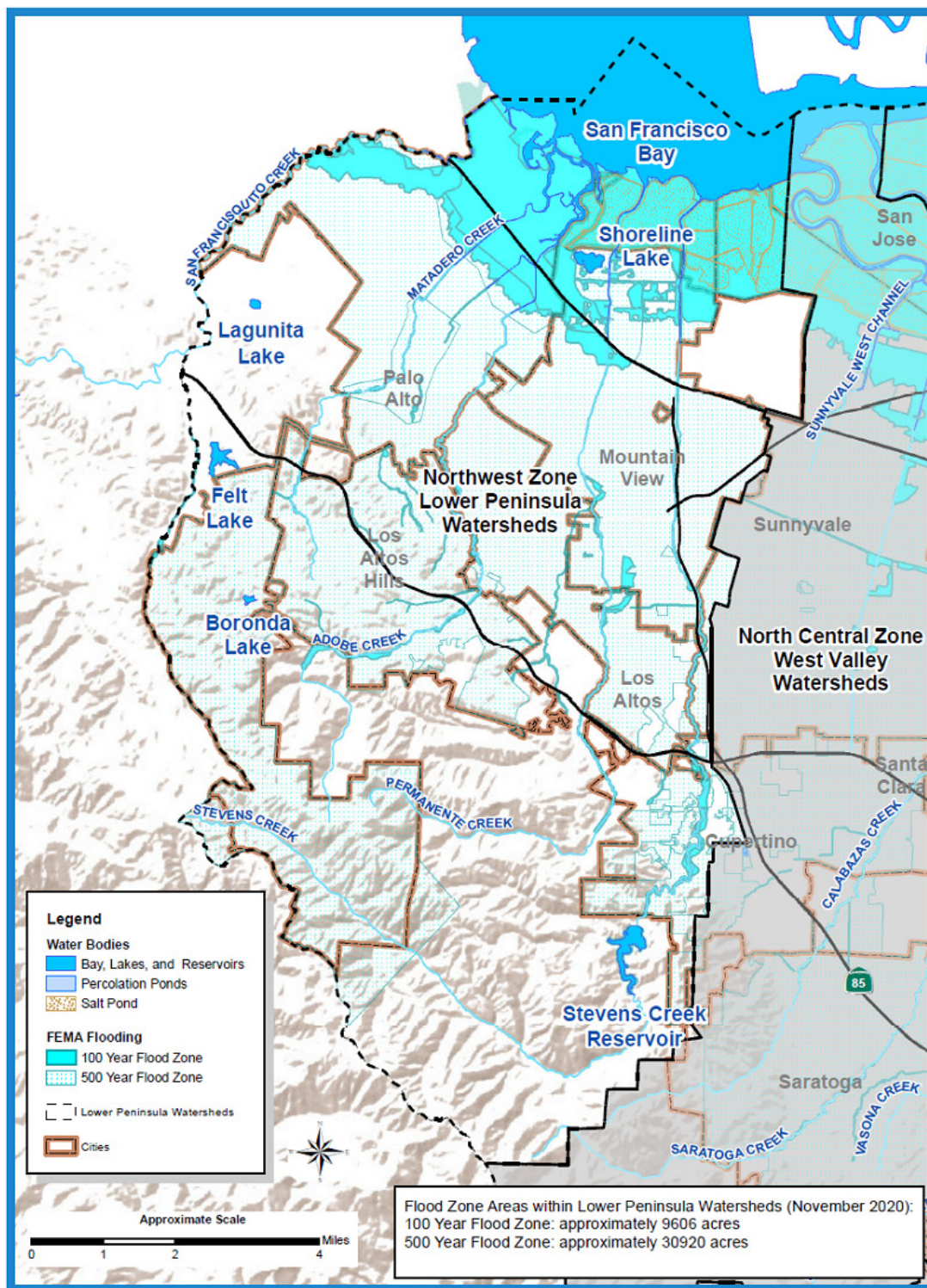
1. INTRODUCTION

A. PURPOSE

The Federal Emergency Management Agency (FEMA) has identified that floods are the most frequent and costly natural disaster in the United States. Creeks in the Lower Peninsula Watershed have flooded the cities of Palo Alto, Los Altos, Los Altos Hills, and Mountain View in Santa Clara County several times over the years. FEMA floodplain mapping estimates that there are currently about 9600 acres subject to flooding from a 100-year (1%) flood event ([Figure 1](#)). In addition, other properties not shown in the FEMA flood area are still subject to flood threats due to potential unforeseen events (e.g., extreme storm events, levee failures, channel blockages) and from water ponding due to inadequate storm drainage. With this in mind, it is important to adequately prepare and respond to potential or actual flood events to protect the people and property in the Watershed.

This Emergency Action Plan for Severe Storm and Flood Response in the Lower Peninsula Watershed (EAP), a Valley Water internal document, is based on previously prepared Valley Water Emergency Action Plans and follows the same format as other Valley Water Emergency Action Plans for Severe Storms and Flood Response. It is focused on fluvial flood threats caused by severe storms and high flows in the creeks and is intended to provide general guidance for response in the Lower Peninsula Watershed. In addition, specific guidance is included for select creeks within the Appendices (San Francisquito Creek, Palo Alto Flood Basin, Permanente Creek and Hale Creek are currently included) to facilitate Valley Water's activities within the following four areas:

1. Pre-incident planning prior to a storm/flood event;
2. Response to potential, imminent or actual storm/flood events;
3. Recovery actions following a storm/flood event; and
4. Coordination with the other responsible jurisdictions for flooding in the Lower Peninsula Watershed.



GIS themes are for illustration and general analysis purposes only and are not accurate to surveying or engineering standards. Information is not guaranteed to be accurate, current, or complete and use of this information is your responsibility.

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FIGURE 1
Lower Peninsula Watershed & FEMA Flood Map
(500-yr flood zone does not always reflect actual conditions)

B. STRUCTURE OF THIS EMERGENCY ACTION PLAN

The plan is organized in three sections:

Base Plan	The Base Plan identifies the roles, responsibilities and actions assigned to Valley Water and responsibilities and actions expected of other stakeholders in the Lower Peninsula Watershed.
Attachments	Attachments include information and guidance useful in any Severe Storm or Flood Incident.
Appendices	Provides specific details on creeks in the Lower Peninsula Watershed.

C. STAKEHOLDERS

Valley Water is one of many stakeholders in the Watershed and will fulfill related responsibilities before, during and after flood emergencies as resources are available and/or can be safely deployed. Other stakeholders include property owners along the creek and public agencies that have responsibility related to emergency preparedness or response in the Lower Peninsula Watershed. In addition to Valley Water and private property owners, other stakeholders included in the list below have important responsibilities or functions during flood emergencies in the Lower Peninsula Watershed that may be identified in this EAP:

- City Stakeholders
 - City of Cupertino
 - City of Los Altos
 - Town of Los Altos Hills
 - City of Mountain View
 - City of Palo Alto
- County of Santa Clara (County)
- San Francisquito Creek Joint Powers Authority
- Caltrans
- Santa Clara Valley Transportation Authority
- Caltrain (also known as Peninsula Corridor Joint Powers Board)
- School Districts and Schools
 - Palo Alto Unified School District
 - Duvenek Elementary
 - Ohlones Elementary
 - Palo Verde Elementary

- St. Thomas Aquinas/St. Elizabeth Seton Catholic School (K-8)
- Kehillah Jewish High School
- St. Francis High School
- Miramonte Christian School
- St. Josephs of Cupertino Catholic School (K-8)
- Los Altos School District
 - Georgina P. Blach Intermediate School
- Mountain View – Whisman School District
 - Crittenden Middle School
- National Weather Service (NWS)
- Federal Emergency Management Agency (FEMA)

While some of the stakeholders may have jurisdictions, responsibilities and, in some cases, oversight of the creek for flood protection, this plan is focused on the related activities of Valley Water. As such, the Valley Water has many internal stakeholders that are involved in preparing and responding to emergency situations. The primary internal Valley Water stakeholders that may have responsibilities and actions assigned in this EAP are:

- Valley Water Board of Directors
 - Office of District Counsel
 - Risk Management Program
 - Office of the Chief Executive Officer
 - Office of Chief Operating Officer – Information Technology & Administrative Services
 - Office of Emergency Services (OES)
 - Office of Chief Operating Officer – Watersheds
 - Operations & Maintenance Division (O&M)
 - Watersheds Field Operations Unit (WFOU)
 - Vegetation Field Operations Unit (VFOU)
 - Operations & Maintenance Engineering Support Unit (O&MES)

- Watershed Stewardship & Planning Division
 - Hydrology, Hydraulics & Geomorphology Unit (HH&G)
 - Community Projects Review Unit
- Watersheds Design & Construction Division
 - Design and Construction Unit
- Office of Chief of External Affairs
 - Office of Communications (OC)
 - Office of Government Relations
 - Office of Civic Engagement

D. LIMITATIONS OF EAP

This EAP shall not constrain the freedom of an Incident Commander (IC) in the field or others when dealing with flooding in the Lower Peninsula Watershed. This EAP does NOT and will NOT replace or override Valley Water's or other Agency's:

- Emergency Operations Plans;
- Department Operations Center Plans;
- Public Safety Authority;
- Public Information Officer role/responsibility;
- Purchasing Authority; nor
- Responsibility for documentation for any state or federal Declaration of Emergency.

Instead, this EAP will focus on how Valley Water can improve coordination before, during and after a flood incident to include providing oversight and guidance. It is not intended to set precedent or commit resources without knowledge of the conditions that may occur, nor provide prescriptive lists of what to do during storm and flood monitoring and response, that Valley Water and other Stakeholders are individual jurisdictions and have independent responsibility to accomplish their tasks. The conditions of the emergency dictate the response needs and availability of staff and resources as each emergency can be different and updates in stream management and control systems could vary the conditions. Valley Water will utilize this EAP as needed to develop decisions and actions based on the situation and current capabilities, resources and priorities.

While this EAP, an Attachment, or an Appendix within may reference an activity related to facility improvements or maintenance, those will be done through separate plans or activities.

E. USE OF THE EAP

This Valley Water internal document is intended to be used by Valley Water before, during and after a storm and includes proactive cooperation with the cities, County of Santa Clara, and other stakeholders as needed. Some response data includes restricted or sensitive information. The restricted portions of this document will clearly be indicated

on the subject pages and will not be distributed or made available externally to individuals outside of Valley Water. Valley Water, cities and other agencies may distribute the full EAP internally but will handle with the same care as other restricted documents.

F. RELATIONSHIP TO OTHER PLANS

This EAP provides additional guidance specific to Valley Water in its planning, response and recovery activities related to flood emergencies in the Lower Peninsula Watershed. This guidance does not supersede existing agreements or internal plans, such as, the Valley Water Emergency Operations Plan (EOP), San Francisquito Creek Multi-Agency Coordination Operations Plan for Severe Storm and Flood Response (SFC MAC), and is consistent with other Valley Water Emergency Action Plans. It may include responsibilities or actions that may be taken by other external stakeholders, many of which are included in this plan, but is not intended to prescribe that responsibility or action to them or to Valley Water. The reference to external stakeholders is intended to show that the responsibility or action is not expected of Valley Water.

G. TRAINING ON EAP

Regular emergency operations training and exercising of plans is critical to successfully respond to emergency events. As the lead agency for flood protection in Santa Clara County, Valley Water will regularly conduct related training and include other stakeholders as appropriate. Valley Water staff participating in these training exercises should use it as an opportunity to review and exercise the Valley Water EOP and, when appropriate, this or a similar EAP.

The Office of Emergency Services (OES) is generally responsible for coordinating and conducting these training sessions that may include: Discussion-based exercises, such as, Workshops, Seminars, or Tabletop Exercises; Operational exercises to test communications or notifications systems; or Functional Exercises to test the operational capabilities of the Departmental Operations Centers (DOC) and/or Emergency Operations Centers (EOC). These will often be general training but may also use specific scenarios that could include the use of this EAP.

If this EAP or a similar EAP has not been included as part of another training effort or activated for any other reason over a 5-year period, the Watersheds Operations & Maintenance Engineering Support Unit (O&MES) will work with OES to schedule a test of this or a similar EAP.

This test can consist of a meeting, including a tabletop exercise, or be conducted as part of Watersheds Operation & Maintenance Division (O&M) tabletop exercises. A scenario or scenarios specific to a creek included in this EAP is recommended to allow participants to discuss response and actions they would take to address and resolve the scenario. It is preferable if each section of an EAP be utilized during the exercise.

Following any exercise or activations, responses and actions should be reviewed, any opportunities to improve or make changes to this and other similar EAPs should be discussed, and all of this should be documented in a summary document or After-Action Report (AAR) prepared by an appropriate party.

H. MAINTENANCE OF EAP

O&M should annually review this EAP and if appropriate include OES, Hydrology Hydraulics & Geomorphology (HH&G) and other appropriate stakeholders in the review. If indicated by the review or by an AAR, the EAP should be updated. The EAP annual review should include the following:

- Verify that the phone numbers and persons in the specified positions are current and revise if any of the contacts have changed;
- Verify and, if necessary, update flood maps and flood thresholds;
- Verify the locally available resources and equipment are current; and/or
- Incorporate appropriate recommendations from any AAR prepared after training or activation of this EAP or similar EAP.

Revisions

Watersheds O&M Division is responsible for updating the EAP document. If the revisions are minor (e.g., updating names and phone numbers), the updated document does not require extensive reviews and new signature approvals. If there are major revisions (e.g., adding new facilities), stakeholder reviews and new signature approvals are required.

The EAP document held by Watersheds O&M Engineering Support Unit Manager is the master document. When revisions occur, the Watersheds O&M Division will provide the revised pages and an updated revision summary page to all EAP document holders. This can be done utilizing several methods including electronically using Portable Document Format (PDF) file sharing or emails.

EAP document holders are responsible for updating outdated copies of the respective documents whenever revisions are received. Outdated pages or files should be immediately discarded to avoid any confusion with the revisions.

OES is responsible for maintaining Valley Water's Flood Emergency Action Plans webpage and will post all revised public versions of the EAP on valleywater.org as determined appropriate.

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2. CONCEPT OF OPERATIONS

A. OPERATIONAL LEVELS

While the primary purpose of this EAP is to provide guidance during flood emergencies, to maintain the collaborative nature of the emergency preparedness and response with other stakeholders this **EAP is in a state of perpetual activation, throughout the year, regardless of the flood condition level**. As the flood threat changes the operational levels will be changed to reflect the current condition. The operational level is composed of the Flood Condition Level and, if determined appropriate, a Flood Severity Level. Tables 1 and 2 below describe the Flood Condition Levels and the Flood Severity Levels respectively. These levels are consistent with those used and issued by the National Weather Service. In addition to high flow condition levels, [Attachment 1](#) lists other events that may result in a change of Condition Level.

TABLE 1
Flood Condition Levels

Green	Preparedness —This is the base stage of readiness that will be the typical condition throughout most of the year. It is defined as: <ul style="list-style-type: none">• Flood stage (Minor Flooding or greater) or 90% to 100% of Design stage is not estimated within the next 72 hours or• Measured stream depth is below 70% of Flood stage or Design stage.
Yellow	Monitoring —This condition is variable and requires more intense monitoring and a heightened level of alertness. Minimal staff in each Stakeholder's Emergency Operations Center (EOC) may be activated. A virtual MAC could be activated if appropriate. An informal EOC Action Plan (AP) could be initiated if activated. This condition is defined as: <ul style="list-style-type: none">• Stream depth is estimated to reach Flood stage or 90%-100% of Design stage in 72 hours or more; or• Measured stream depth is at 50% to 70% of Flood stage or 70% to 90% of Design stage; or• For areas that are controlled purely by storm drain runoff (flashy systems), the stream depth is estimated to reach Flood stage or near Design stage within 24 hours.
Orange	Watch —The Stakeholders' would increase staff in their EOCs, if they had been activated, and a MAC facility could also be established if appropriate. If activated, a formal EOC AP will be drafted. This condition is defined as: <ul style="list-style-type: none">• Stream depth is estimated to reach Flood Stage or greater than Design stage within 24 to 72 hours; or• Measured stream depths are at 70% to 100% of Flood stage; or• Measured stream depths are at 90% to 100% of Design stage; or• For areas that are controlled purely by storm drain runoff (flashy systems), the stream depth is estimated to reach Flood stage or greater than Design stage within 6-12 hours.

Red	<p>Warning—This is a more urgent situation. The Stakeholders' EOC may be activated along with a MAC, if appropriate, that would monitor the situation, providing notifications and responding according to a written AP. Often for smaller watersheds with flashy creeks, an EOC or MAC will not be opened until the storm event is occurring. This condition is defined as:</p> <ul style="list-style-type: none"> • Flood stage or greater than Design stage or is occurring or is estimated to occur within 24 hours; or • Measured stream depths are 100% or greater than Flood stage; or • Measured stream depths are greater than Design stage; or • For areas that are controlled purely by storm drain runoff (flashy systems), the stream depth is estimated to reach Flood stage or greater than Design stage within minutes/hours or is occurring.
<p><u>Note</u>: Design stage is the depth of water that a facility design is based upon and Flood stage is the depth of water at which a stream or facility begins flooding (see Glossary of Terms).</p>	

TABLE 2
Flood Severity Levels

Action (Yellow)	An established gauge height which when reached by a rising stream, lake, or reservoir represents the level where action is taken in preparation for possible significant hydrologic activity.
Minor Flooding (Orange)	Minimal or no property damage, but possibly some public threat (e.g., inundation of roads).
Moderate Flooding (Red)	Some inundation of structures and roads near stream, evacuations of people and/or transfer of property to higher elevations.
Major Flooding (Purple)	Extensive inundation of structures and roads, significant evacuations of people and/or transfer of property to higher elevations.

B. EMERGENCY ACTION PLAN: OBJECTIVES AND FUNCTIONS

Valley Water and other stakeholders focus on the following Objectives, Capabilities, and Functions. The following is consistent with the concepts of the National Incident Management System (NIMS) and Incident Command System (ICS) from the FEMA and the Standardized Emergency Management System (SEMS) from the State of California Office of Emergency Services.

1. Objectives

The following objectives are in alignment with the purpose of this EAP to coordinate the interagency response, resource management and recovery operations; and to collaborate on public messaging.

- **Objective 1: Identify Conditions, Actions, and Needs**
 - Core Capability: Situational Awareness

- **Objective 2: Notification of Involved Agencies and Staff**
 - Core Capability: Activation; Coordination
- **Objective 3: Emergency Public Information**
 - Core Capability: Public Information Officer (PIO) Collaboration in communications
- **Objective 4: Warning**
 - Core Capability: Public Warning
- **Objective 5: Coordination of Field Operations; Resource Sharing**
 - Core Capability: Personnel Accountability; Mutual Aid; Tracking; Finance Issues

2. Functions & Personnel

In keeping with the concepts of SEMS and NIMS, utilizing common functions to maintain the orderly flow of information and responsibility within an agency and between agencies is important during emergency situations. Consistency in utilizing the SEMS functions in an activation improves the organization and communication flow.

During any condition level, personnel will be assigned to fulfill the required actions. In early progression of an event (e.g., Monitoring), staff may perform the duties of multiple functions. But, as an event progresses in condition levels, the functions will likely require dedicated staff assigned to these Sections to fulfill the duties. The Sections and/or functions utilized during condition levels are listed below and are described in Valley Water's Emergency Operations Plan (EOP) and EOC Responder Handbook.

a. *Management*

Activation of an EOC or DOC is a Management Section function as described in the EOP or other Standard Operating Procedures consistent with SEMS and NIMS. Responsibilities of the Management Section include: EOC Director, liaison, safety/risk, and public information. As conditions warrant or progress, EOC/DOC Management personnel have the ability to make policy decisions within constraints defined by the Elected Officials, including those on matters of cost and/or liability, staffing levels, and resource needs. Agency Representative (AR) and Agency Coordinators (AC), which are personnel terms used in other Emergency Action Plans and Multi-Agency Coordination Plan, are members of the Management Section. Valley Water and other Stakeholders Management Sections may confer on:

- Critical conditions
- Agency priority responses

- Common resource needs
- Resource request processing
- Managing conflicting policy issues
- Co-locating EOC personnel
- Sending liaison staff to other stakeholder EOCs

Managing the EOC facility, maintaining the EOP and related documents (excluding the Emergency Action Plans), and assuring staff is properly trained at Valley Water is a responsibility of Office of Emergency Services (OES). OES supports the Management and other EOC Sections during an activation with guidance on procedures, related materials and emergency forms (e.g., ICS Form 214 – Activity Log).

Public Information Officers (PIOs) are staff assigned to the Management Section and are typically staff from the Valley Waters Office of the Chief of External Affairs. As an event unfolds there is a constant need of notifying the public of conditions and what to do. The PIOs are responsible for identifying with whom to communicate, creating the message, and specifying the format and method of communication to deliver the message to the public and stakeholders.

The PIOs from Valley Water and from each involved Stakeholder Agency will follow the checklists and responsibilities identified in their EOPs. This EAP does not change that responsibility or override the tasks outlined in the EOP.

PIOs should coordinate to create a common message to avoid confusing the public, which can occur when each of the agencies sends out disparate messages. They should also communicate on methods and multi-lingual needs to sending out messages that may be accomplished through use of the Alert Santa Clara County (Alert SCC), Integrated Public Alert & Warning System (IPAWS), deployment of Long-Range Acoustic Devices, door to door contact with volunteers or employees, or other methods.

During an event requiring a significant amount of coordination, the PIOs should consider the establishment of a Joint Information System (JIS) or Joint Information Center (JIC).

Elected Officials have important public and policy functions during the Watch and Warning stages of emergencies, but they should not be involved in the details of an emergency response. To assist them in their function, Valley Water PIO or other Management Section assigned liaison staff will be directed to contact and keep them informed of the situation and provide them with appropriate public messaging. If Elected Officials are in contact with affected constituents and receive pertinent information, they should convey that information to the DOC/EOC through PIO or their assigned liaison staff.

b. Planning/Intelligence

In an emergency, it can take some time for an agency to (1) ascertain what has happened, (2) what is likely to happen, and (3) what areas and/or systems are affected. The SEMS and NIMS function of Planning/Intelligence helps gather and validate information and thereby fulfill the need for intelligence. In the early condition levels of an emergency, Planning/Intelligence Section may be combined under one person who may also be filling other functions (e.g., Operations). As an emergency response grows and additional staff are required it should be separated from other functions and all associated responsibilities transferred to the appropriate Section. Below are some of the responsibilities of Planning/Intelligence.

(1) Documentation

All activity and actions will be documented as best as possible through the use of an ICS Unit Log and other standard forms available at the EOC Facility. The use of status boards is encouraged to clearly communicate information to EOC personnel.

(2) Situation Status

The **Subject Mater Experts (SMEs)** consolidate all intelligence and provide Situational Awareness regarding weather forecasts, damage assessments, flooding reports, traffic conditions, etc. This is accomplished through reports, documentation on status boards and/or maps, and is conveyed through an Action Plan (AP). The AP may be verbal at the Monitoring stage of EOC/DOC operations. When the EOC is activated at a Watch or Warning Operational Level, an AP for a specified operational period should be written. For Valley Water, staff from the **Hydrology, Hydraulics & Geomorphology Unit (HH&G)** are generally assigned this function in the Planning/Intelligence Section, but staff from other units may also be assigned to serve as SMEs.

(3) Agency and Resource Status

Determining what agencies have accomplished and what they may need includes identifying what personnel and resources have been deployed, the prevailing condition, the need for mutual aid, and tracking other resource demands or similar requests.

(4) Notification

The Planning/Intelligence activities accomplished by the SMEs lead to the appropriate notification of Stakeholders as described in Section 2.E., Emergency Action Plan Mobilization, Step 3: Notification and Communication on pages 22 to 25.

c. *Operations*

Staff from Valley Water's Watersheds Field Operations Unit (WFOU) are often the first responders to flood events in the field and will initiate the ICS by assigning an Incident Commander (IC) for the area of concern. WFOU or Operations & Maintenance Engineering Support Unit (O&MES) will generally open a Department Operations Center (DOC) to coordinate the response. The IC will notify their DOC and, if activated and appropriate, the Valley Water Emergency Operations Center (EOC) of activities and conditions in the area.

Operations Section and sometimes Planning/Intelligence Section will deploy Field Information Teams (FITs) to observe and inspect facilities. The FIT provides critical "boots on the ground" information and intelligence back to the EOC/DOC on facility conditions and storm related concerns.

- *FIT Personnel:* These may be personnel assigned to the Operations Section or Planning/Intelligence Section in their respective DOC/EOC. Or these may be staff in the field conducting operations and maintenance related activities as part of the ICS. HH&G manages a Valley Water FIT program and maintains a current master list of "hotspots" for deployments in preparedness for severe storm and high flow events.
- *FIT Authority includes:* Provide field intelligence to their DOC/EOC Section Leader or their organizational supervisor/ manager. Take actions that would mitigate risks only if capable and appropriate.

d. *Logistics*

As the incident unfolds and resources respond to the prevailing conditions, skilled or scarce resources will be tapped-out and require backfill, replacement or additional support. The support can come in the form of mutual aid assistance, contractors, vendors, or other sources. Resource requests will be noted and coordinated as much as possible through the EOCs or DOCs. The method of request, including any related form, will be coordinated with the Agency fulfilling the need. If resources cannot be met by local stakeholders, a request for assistance can be sent to the Santa Clara County Operational Area.

e. *Finance*

Acquiring resources or entering into procurement contracts or mutual aid agreements may require financial actions. In addition, the costs associated with an event should be documented for potential future reimbursements. This is especially the case as resources from one Agency are shared with another Agency. This use of equipment, personnel or other resources may be reimbursable, based upon agreement.

C. PROGRESSION

There are general responsibilities for each flood condition level that are recommended. Responsibilities and activities listed in Table 3 demonstrate how the Valley Water and other Stakeholders functions grow from Pre-Incident Preparedness to Monitoring, Watch, and Warning. The overall change in level of participation, number of participants, and staffing needs is incident specific, because not all potential or actual incidents are the same and availability of resources can vary. In addition, in the case of San Francisquito Creek, a Multi-Agency Coordination structure may be activated to improve coordination between stakeholder agencies to plan and implement actions. In this situation, the use of the term Stakeholder would include the SFC MAC.

The list of progressive responsibilities and activities listed in Table 3 are not intended to be all-inclusive or to commit resources without knowledge of the conditions that may occur, nor are they intended to be a prescriptive list of what to do before and during storm and flood monitoring and response. The actual conditions dictate the response needs and availability of staff and resources as each situation can be different and updates in stream management and control systems could vary the conditions.

TABLE 3
Progressive Responsibilities

	Responsibility/Activity	Stakeholder/Personnel/Unit*
Preparedness (Green)	Train & Exercise EOP/EAP and document any outcomes in an After-Action Report (AAR).	Office of Emergency Services (OES)
	Meet with Stakeholders as appropriate to discuss property management needs and plans.	Operations & Maintenance (O&M)
	Conduct field inspections of creeks and facilities including tide gates and pumps (e.g., McKelvey Detention Basin pump).	Operations & Maintenance Engineering Support (O&MES)
	Perform mitigation work to reduce flood risk.	Watershed Field Operations Unit (WFOU), Vegetation Field Operations Unit (VFOU), Watersheds Design & Construction Unit
	Inventory and Procure Flood Fighting Materials and Equipment (Attachments 11 & 12).	WFOU and VFOU
	Identify location for flood fighting resources for the public (e.g., sandbag locations shown in Attachment 7).	O&MES & VFOU
	Support & Coordinate with FEMA Floodplain Managers who maintain the National Flood Insurance Program Community Rating System certification.	Community Projects Review Unit and Office of Civic Engagement
	Provide technical floodplain mapping expertise and provide a copy of flood maps on a Valley Water internal drive that can be accessed by appropriate personnel as necessary.	Hydrology, Hydraulics & Geomorphology (HH&G)
	Coordinate, as members of the National Flood Insurance Program, on updates or modifications to FEMA floodmaps.	City Stakeholder, Community Projects Review Unit and Office of Civic Engagement
	Maintain equipment, gauges, telemetry, communications systems, etc.	HH&G, City Stakeholder

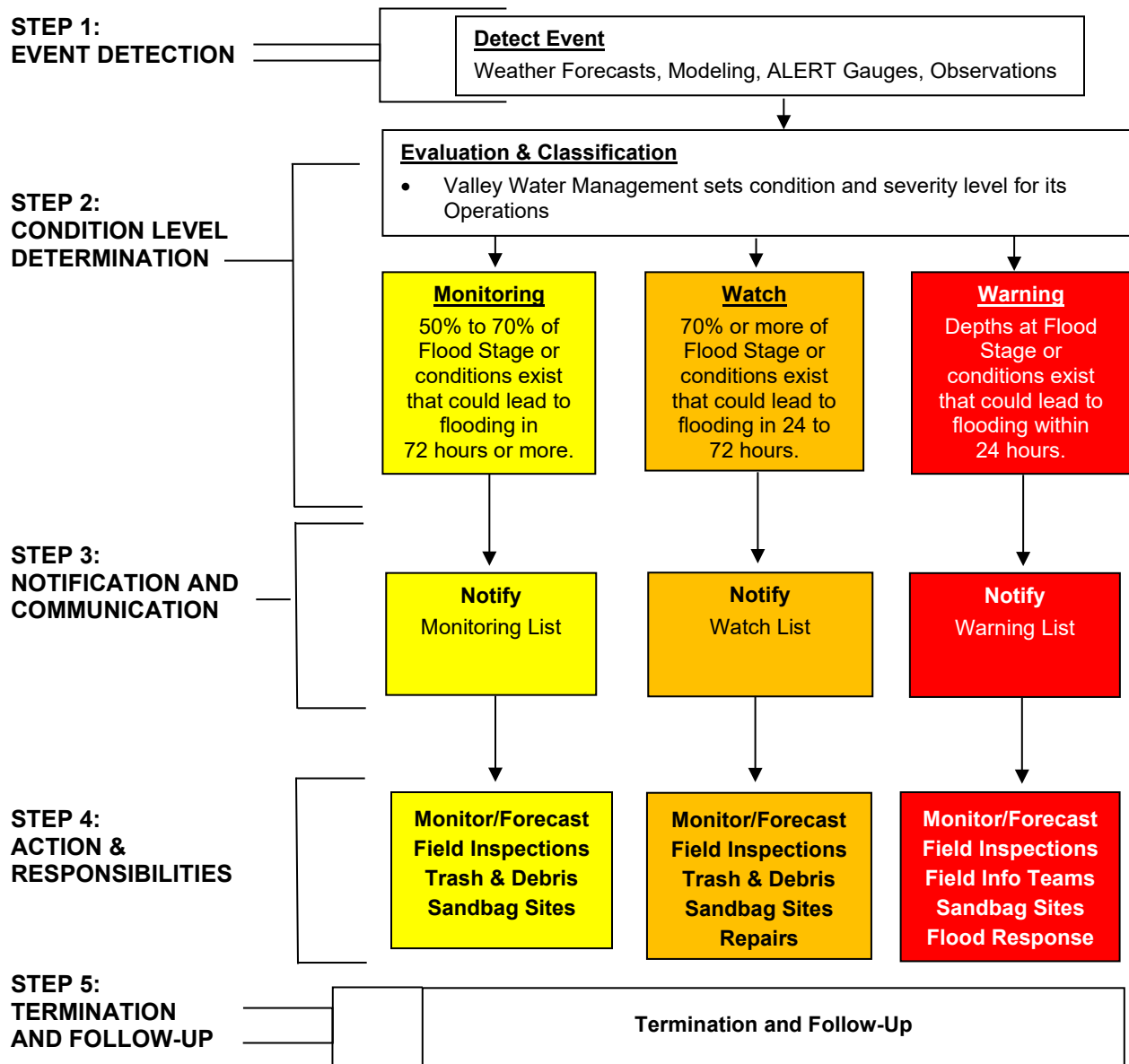
	Responsibility/Activity	Stakeholder/Personnel/Unit*
Preparedness (Green)	Develop and maintain computer models of watersheds and creeks.	HH&G
	Prepare Field Information Teams (FITs) and maintain FIT Hot Spot information.	O&MES & HH&G
	Conduct winter preparedness workshop.	OES
	Annual review and update of EAP.	O&M, OES, HH&G
	Manage flood information websites (Attachment 13).	Office of Communications (OC), HH&G, OES, National Weather Service (NWS), Federal Emergency Management Agency (FEMA)
	Publish Preparedness Public Outreach (e.g., Winter Preparedness) in multiple languages.	OC
	Provide public education in multiple languages.	OC
Monitoring (Yellow)	Activate the EAP for "Monitoring."	Emergency Operations Center (EOC) or Department Operations Center (DOC) Management
	Notify staff about the increased condition level.	EOC or DOC Management-Public Information Officer (PIO)
	Communicate with other agencies to discuss activation level.	EOC or DOC Management
	Deploy and coordinate Field Information Teams (FIT).	O&MES and/or HH&G
	Respond to, and mitigate, minor events as needed (examples of remedial actions are listed in Attachment 2); coordinate with each responding agency.	O&MES/WFOU
	Inspect and clean Trash Racks, Bridge Pier Noses, and Tide Gates.	WFOU
	Maintain inventory of sandbags at locations shown in Attachment 7 .	VFOU
	Respond to equipment needs at localities likely to be affected if possible; coordinate with each responding agency.	WFOU
	Manage and update flood information websites (Attachment 13).	OC, HH&G, NWS, FEMA
	Provide public education in multiple languages.	OC and City Stakeholders
	Provide information to Elected Officials.	EOC Management-PIO
	Monitor Stream Gauges.	HH&G
	Update computer modeling based on forecast and watershed conditions and provide a copy of flood maps on a Valley Water internal drive that can be accessed by appropriate personnel. If possible and deemed necessary, provide forecast flood maps to Agency Stakeholders.	HH&G
	Review evacuation planning needs.	City Stakeholder and County
	Report to Agency Stakeholder EOC when directed and available.	EOC Planning/Intelligence or Operations

	Responsibility/Activity	Stakeholder/Personnel/Unit*
Watch (Orange)	Activate the EAP for “Watch.”	EOC or DOC Management
	Report to Agency Stakeholder EOC when directed and available.	EOC Planning/Intelligence or Operations
	Notify appropriate staff about the increased condition level.	PIO
	Determine next level of activation.	Management
	Confer with Agency Stakeholders to determine response coordination needs and resources needs.	Planning/Intelligence or Operations
	Communicate risk to elected officials.	EOC Management-PIO
	Confer with EOC Director on conditions for potential evacuation and shelter support.	City Stakeholder and County EOC
	Respond to, and mitigate, minor events as needed (examples of remedial actions are listed in Attachment 2); coordinate with each responding agency.	WFOU
	Inspect and clean Trash Racks, Bridge Pier Noses, and Tide Gates.	WFOU
	Respond to equipment needs at localities likely to be affected if possible; coordinate with each responding Agency Stakeholder.	EOC Operations and/or WFOU
	Deploy and coordinate Field Information Teams (FIT).	O&MES/HH&G
	Monitor Stream Gauges.	HH&G
	Update computer modeling based on forecast and watershed conditions and post flood maps on a shared drive for internal Valley Water Use, if possible and deemed necessary, provide forecast flood maps to Agency Stakeholders.	HH&G
	If appropriate, evaluate possible recommendations for City storm pump station operating changes and communicate with City.	Planning/Intelligence and Management
	Maintain inventory of sandbags at locations shown in Attachment 7 .	VFOU
	Update location for flood fighting resources for the public and supply additional resources as needed (e.g., sandbag locations).	EOC Operations, WFOU, and/or VFOU
	Manage flood information websites (Attachment 13).	OC, HH&G, NWS, FEMA
	Provide public information in multiple languages.	Each Stakeholder EOC Management-PIO collaborates and is lead to its constituents.
	Provide public warning in multiple languages.	City Stakeholder is lead. County is key support.
	Activate other public notification systems (e.g., Alert SCC, Facebook, Nextdoor), as appropriate.	City Stakeholder is lead.
	Activate Joint Information System (JIS) and, if necessary, Joint Information Center (JIC) as appropriate.	City Stakeholder or County is lead.
	Participate in JIC/JIS if activated.	EOC Management-PIO

	Responsibility/Activity	Stakeholder/Personnel/Unit*
	Communicate with media as needed.	Joint Information System (JIS)/Joint Information Center (JIC) or each Stakeholder is lead for own agency activities.
	Provide information on impact and available resources to and from respective EOC's.	EOC Management
	Provide information to and from respective EOC's, including status reports and briefings.	EOC Management
Warning (Red)	Activate the EAP for "Warning."	EOC Management
	Report to Agency Stakeholder EOC when directed and available.	EOC Planning/Intelligence or Operations
	Notify appropriate staff about the increased condition level.	EOC Management-PIO
	Confer with Agency Stakeholders to determine response coordination needs and resources needs.	EOC Planning/Intelligence or Operations
	Communicate risk to elected officials.	EOC Management-PIO
	Confer with EOC Director on conditions for potential evacuation and shelter support.	City EOC and/or County EOC is lead.
	Provide information on impact and available resources to and from respective EOC's.	EOC Management
	Coordinate resources through respective EOCs.	EOC Management or Logistics
	Respond to, and mitigate events as needed (examples of remedial actions are listed in Attachment 2); coordinate with each responding agency.	EOC Operations and WFOU
	Inspect and clean Trash Racks, Bridge Pier Noses, and Tide Gates.	WFOU
	Respond to equipment needs at localities likely to be affected if possible.	EOC Operations and WFOU
	Deploy and coordinate Field Information Teams (FIT).	O&MES/HH&G
	Monitor Stream Gauges.	HH&G
	Update computer modeling based on forecast and watershed conditions and, if possible and deemed necessary, provide forecast flood maps.	HH&G
	If appropriate, evaluate possible recommendations for City storm pump station operating changes and communicate with City.	Planning/Intelligence and Management
	Maintain inventory of sandbags at locations shown in Attachment 7 .	VFOU
	Update location for flood fighting resources for the public and supply additional resources as needed (e.g., sandbag locations).	EOC Operations, WFOU and VFOU
	Manage flood information websites (Attachment 13).	OC, HH&G, NWS, FEMA
	Provide public information in multiple languages.	Each Stakeholder EOC Management-PIO collaborates and is lead to their constituents.

	Responsibility/Activity	Stakeholder/Personnel/Unit*
Warning (Red)	Provide public warning and shelter information in multiple languages.	City is lead. County is key support.
	Activate other public notification systems (e.g., Alert SCC, Facebook, Nextdoor, door to door/mobile for warning) as appropriate.	City Stakeholder EOC Management-PIO is lead.
	Activate Joint Information System (JIS) and, if necessary, Joint Information Center (JIC) as appropriate.	City Stakeholder or County is lead.
	Participate in JIC/JIS if activated.	EOC Management-PIO
	Communicate with media as needed.	JIS/JIC or each Stakeholder is lead for own agency activities.
	Provide information to and from respective EOC's, including status reports and briefings.	EOC Management
	Implement evacuation plans and deploy resources to evacuate.	City Stakeholder is lead.
	Proclaim Local Emergency as appropriate.	City Stakeholder is lead.
*If only one Stakeholder is noted as lead, other Stakeholders/Personnel/Units may support the effort.		

D. EMERGENCY ACTION PLAN OVERVIEW



E. EMERGENCY ACTION PLAN MOBILIZATION

While the primary purpose of this EAP is to provide guidance to Valley Water during emergencies, the EAP is in a state of perpetual activation, throughout the year, regardless of the condition. For a majority of the time, Valley Water and City's operations are focused on preparedness. Preparedness is critical to reduce the risk of flooding and during this period, Valley Water and Cities perform activities consistent with their jurisdictional responsibilities. [Table 3](#) describes some of the activities performed by Valley Water and Cities during the preparedness condition level.

As conditions in flood basin progress, there are four general steps Valley Water and City follow to determine the level at which to activate the EAP, or when to increase the EAP condition level.

Step 1: Event Detection

Several detection methods can be utilized in the Lower Peninsula Watershed that include weather forecasts, hydrologic/hydraulic modeling, Automated Local Evaluation in Real Time (ALERT) stream/reservoir/precipitation gauge systems, and field observations. Some of these detection methods are available through websites that are listed in [Attachment 13](#).

a. *Weather Forecasts*

The National Weather Service (NWS) provides weather (e.g., precipitation) forecasts in advance of storm events and Valley Water contracts with a service provider for enhanced forecasting.

During storm events, the NWS will host webinars with affected agencies and utilities to discuss forecasts and share information to enhance regional preparedness. The Valley Water and Agency Stakeholders can participate in these webinars and share all current information. In addition, the NWS maintains websites ([Attachment 13](#)) that provide forecasts and will issue public notices of forecasted flood threats on local television and radio programming.

b. *Hydrologic/Hydraulic Modeling*

If forecasts show a heightened possibility of flooding, it is possible that Valley Water will run hydrologic and hydraulic modeling to determine risk and impact areas for a specific storm event.

c. *Gauge System*

A listing of all Valley Water gauges and a United States Geological Survey gauge on Saratoga Creek can be found at <http://alert.valleywater.org> (links are listed in [Attachment 13](#)). Valley Water's Automated Local Evaluation in Real Time (ALERT) system can set alarms to automatically notify appropriate staff at predetermined stages. These gauges and alarms provide data in near real-time and can provide extra warning to determine the level of threat for flooding.

d. *Field Information Teams and Field Operations & Maintenance*

As water levels increase in the creeks, rivers, and waterways, Valley Water Field Information Teams (FITs) may be deployed to visually monitor and report back to a DOC or EOC the situation that may include rate of water surface elevation increases in areas of potential flooding. In addition, FITs can monitor facilities for potential damage, identify surface drainage issues, thoroughly document actual flooding, and report landslides/erosion affecting the adjacent land uses.

Valley Water and, in some cases, other Stakeholders have individual teams in the field to observe flood conditions at “hot spots.” Deployment of these teams may be coordinated so that personnel are used most efficiently and effectively. HH&G maintains a master list of flooding hotspots to deploy Valley Water FITs and other teams ([Attachment 14](#)).

Operations & Maintenance staff are also typically in the field inspecting and repairing facilities during storm events. These personnel should also provide intelligence back to their agencies EOC/DOC regarding facility conditions and any storm related concerns.

In addition, the public may be helpful in reporting situations that may pose a flood threat. These are typically reported to Valley Water, City Stakeholder or other stakeholder who should promptly relay that intelligence to the DOC/EOC or to Valley Water through a contact method shown below:

- Main Valley Water telephone – (408) 265-2600
- After hours telephone – (408) 395-9309
- Valley Water website report problems – <https://www.valleywater.org/contact-us> or <https://access.valleywater.org/s/>
- Non-Emergency Police & Fire dispatch – 311
- Emergency Police & Fire dispatch – 911

All together the intent of these observations is to cover the following:

- (1) Visual stream gauges – check for high water and rate of change
- (2) Known Flood Hot-Spots
- (3) Real-time Flooding – report and document flooding
- (4) Bridge Piers – check for debris blockages
- (5) Trash Racks – check for debris blockages
- (6) Levees and Floodwalls – check for damage and stability
- (7) Sandbag sites – check for supply and access issues
- (8) Previously repaired or other project sites – check for performance
- (9) Bank Stability – check for threats to adjacent land uses

Step 2: Condition Level Determination

Evaluation—After detecting and gathering adequate intelligence regarding the situation, an evaluation of waterway conditions must be performed by appropriate personnel. The

personnel evaluating the intelligence will generally be one or more SMEs that will generally include staff from O&M and HH&G. SMEs evaluation of intelligence information will be shared with appropriate management staff for decisions on actions and establishing condition levels.

Classification—The EAP is always active, however, after detection of an unusual event the condition level may be changed. Based on a technical evaluation of the intelligence detected by SMEs, they may recommend condition levels over a general area or for a specific creek and location. If a specific creek is being assessed the recommendation for condition level and, if appropriate, severity level would be based on facility specific thresholds detailed in an Appendix of the EAP or situations as described in [Attachment 1](#). The condition level and, if possible, the severity level would be set by an appropriate level of personnel, generally Management, based on all intelligence gathered. The decision for a change in condition level is typically made by Management of the EOC or DOC.

Step 3: Notification and Communication

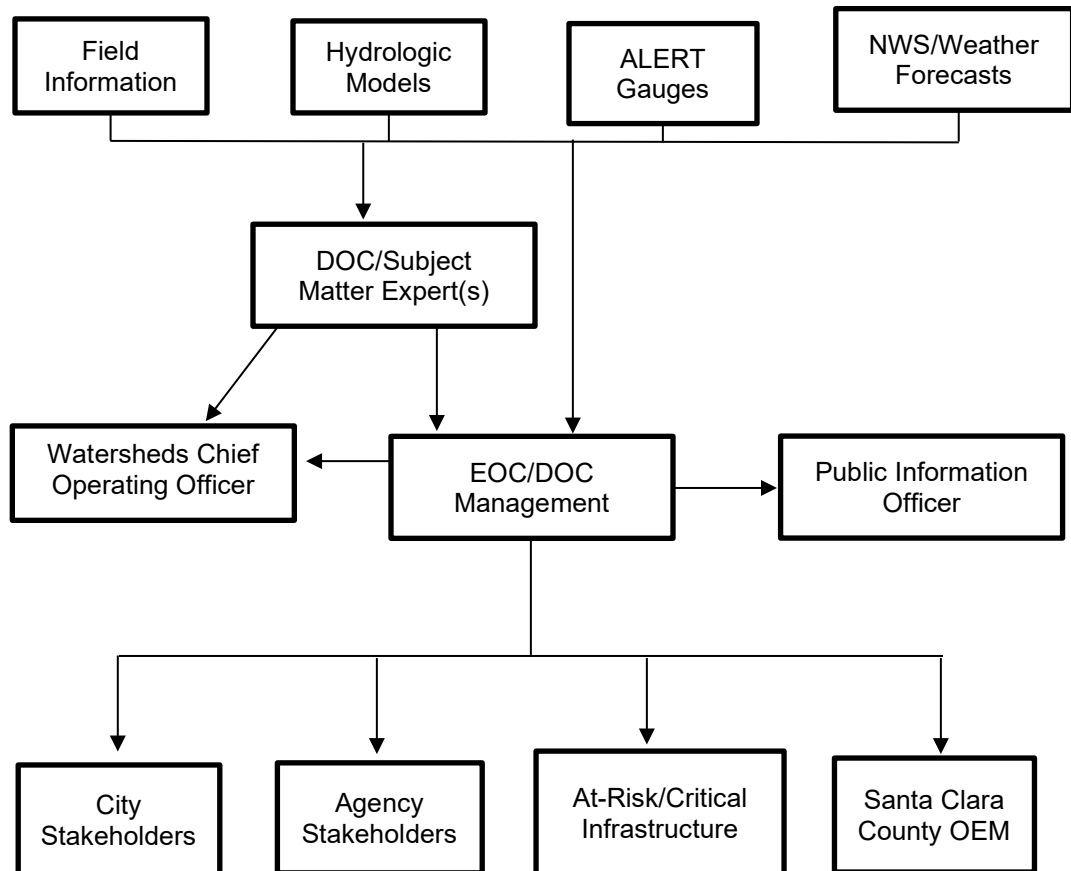
After the condition levels and severity have been determined, appropriately communicating the situation to responsible agencies, staff, and other identified individuals and groups is critical. Depending on the condition level, responsibilities for notifications and who is notified would vary. Often during a monitoring condition, the Emergency Operations Center (EOC) would not be open or only minimally staffed and the DOC may not yet be activated, however, SMEs and/or Operations may be very active. Valley Water's list of entities that may be provided information or notifications of the condition level and flood severity could include:

- Internal Valley Water staff;
- City Stakeholders;
- County of Santa Clara Office of Emergency Management;
- Other Agency Stakeholders;
- Valley Water Elected Officials;
- Important Facilities and Infrastructure at risk of flooding, such as, schools, medical, governmental facilities or businesses;
- Public (Generally Valley Water is in a support role to the City Stakeholder during events); and
- Impacted businesses and residents (Valley Water is typically in a support role to City Stakeholders).

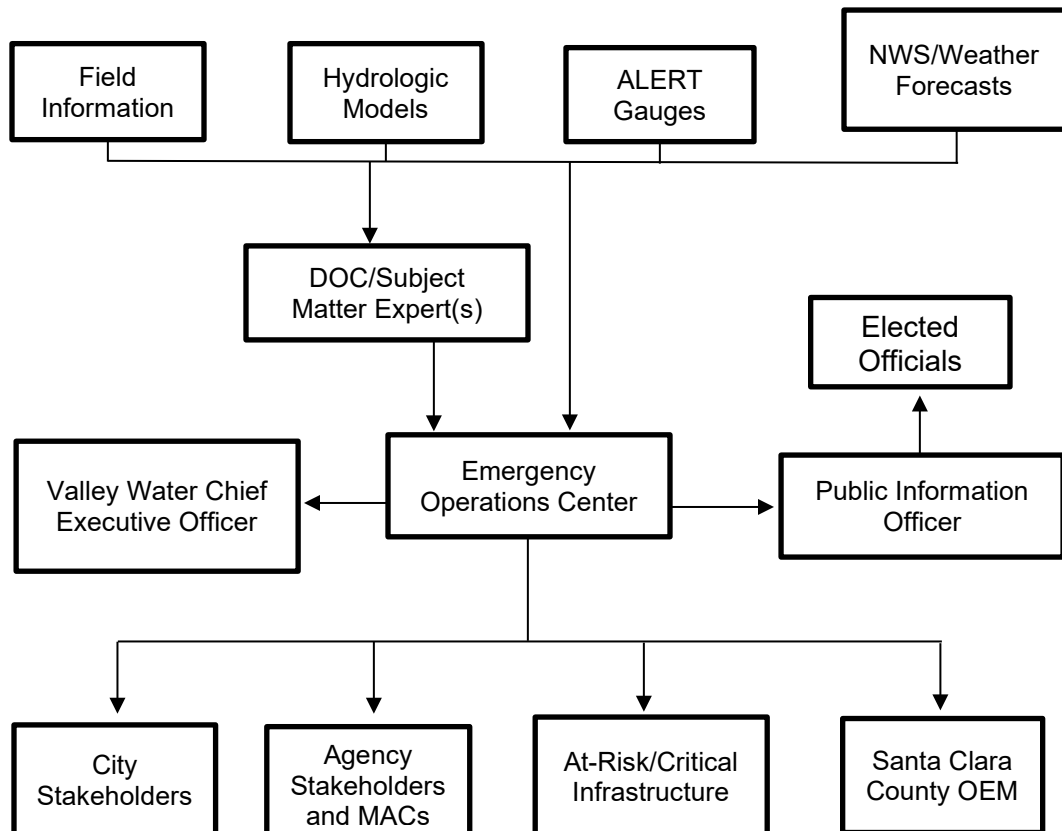
In addition, the condition level and severity should be reflected on the Valley Water website which should strive to be consistent with website information and public notifications provided by the City Stakeholders and NWS.

The following are charts showing the flow of information and notifications for the three flood threat condition levels and the contact list is in [Attachment 9](#) – Emergency Services Contact List and [Attachment 10](#) – Valley Water Emergency Responders Contact List.

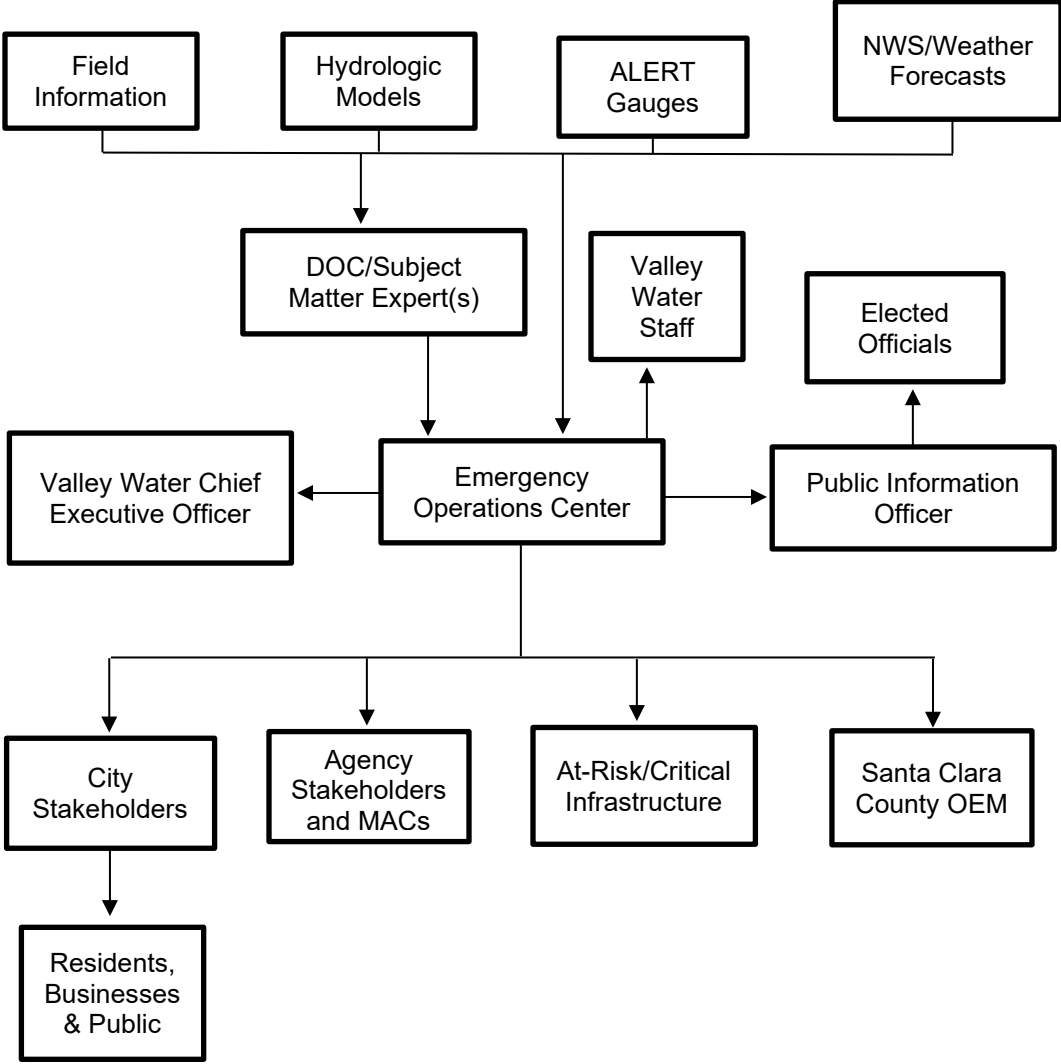
Monitoring Condition Level Information/Notification Flow



Watch Condition Level Information/Notification Flow



Warning Condition Level Information/Notification Flow



External emergency services contacts are listed in [Attachment 9](#) and Valley Water emergency responders are listed in [Attachment 10](#).

Step 4: Actions & Responsibilities

The EAP is considered in the Preparedness condition level as a standard operational practice. After an unusual or emergency event is detected, the DOC/EOC may raise the condition level, if the DOC/EOC has not been activated, the Watersheds Field Operations Unit Manager, Watersheds O&M Engineering Support Unit Manager, or HH&G Unit Manager may classify the event into a higher condition level. If they do raise the condition level, this must be communicated to OES and to the Watersheds Chief Operating Officer so that a decision can be made of whether to activate the EOC and to initiate further notifications.

At each condition level, there are actions and responsibilities for Valley Water personnel (described in the Concept of Operations Section). Progressive responsibilities are described in [Table 3](#) and personnel specific responsibilities during an event are described in [Attachments 3 through 8](#).

The Incident Commander or Watersheds Field Operations staff will take action to mitigate the event as appropriate. Examples of emergency remedial actions that could be taken to mitigate the event are provided in [Attachment 2 – Emergency Remedial Actions](#).

Step 5: Termination and Follow-Up

After this EAP has been activated at a level of Monitor, Watch or Warning and then returned to Preparedness, EAP operations must be terminated, and follow-up procedures completed.

a. Termination Responsibilities

In a Watch or Warning, the DOC or EOC Director, is responsible for terminating EAP operations and directing that this decision is relayed to each person notified during the original event.

DOC or EOC Management will ensure that all forms for Action Planning, Situational Reports, or others utilized during the event are collected and organized chronologically as determined appropriate. If electronic documentation was utilized, these could be saved on a storage device that could be retrievable or could be printed and saved as a hard copy in the file.

b. Follow-Up Responsibilities

The Operations & Maintenance Engineering Support Unit (if DOC is activated), or the Office of Emergency Services (if EOC was activated), will prepare an After-Action Report (AAR) of the event and will track implementation of appropriate recommendations in the AAR.

Cities or other stakeholders will be responsible for damage assessment to homes and businesses and any permit requirements required to reoccupy structures and to promote flood mitigations measures during any reconstruction.

ATTACHMENT 1

Guidance Table for Evaluating Facility During High Flow and Determining the Condition Level

EVENT	SITUATION	CONDITION LEVEL*
Bank Erosion	Erosion scour that is threatening a facility but is stable (i.e., scour is not getting bigger).	Monitor Yellow
	Erosion scour during high flows that is threatening a facility (e.g., a bridge) that if allowed to continue, could result in failure of facility.	Watch Orange
	Erosion scour that is threatening a structure on an adjacent property during high flows.	Watch Orange
	Erosion scour during high flows that has caused or will cause a blockage in the creek that will produce flooding.	Warning Red
Boil/Seepage	Seepage area with clear water discharging less than 1 gallon per minute.	Monitor Yellow
	Seepage area with cloudy water or increasing rate.	Watch Orange
	Seepage area with discharge greater than 10 gallons per minute.	Warning Red
Levee Damage	New cracks in embankment greater than ¼ inch without seepage.	Monitor Yellow
	Slippage or erosion scour of levee bank during high flows.	Monitor Yellow
	Cracks in levee with seepage discharging less than 1 gallon per minute.	Watch Orange
	Cracks in levee with seepage discharging more than 1 gallon per minute.	Warning Red
	Sudden or rapid slumping or scour on levee slopes.	Warning Red
Stage at ALERT or Visual Stream Gauge	Water depth corresponds to 50% capacity.	Monitor Yellow
	Water depth corresponds to 70% capacity.	Watch Orange
	Water depth at or greater than top bank.	Warning Red
Downed trees in creek channel	Downed tree, high flows; could collect debris, redirect flow, or move downstream.	Monitor Yellow
	Downed tree, high flows; redirecting flows causing bank scour or obstructing flow creating backwater effect.	Watch Orange
	Downed tree causing flooding.	Warning Red

ATTACHMENT 1
Guidance Table for Evaluating Facility
During High Flow and Determining the Condition Level (continued)

EVENT	SITUATION	CONDITION LEVEL*
Bridge/Pier nose blockage	Debris build up that could affect forecast flows or is affecting flows but water receding.	Monitor Yellow
	Debris build up affecting flows with increased flows forecast or more debris collecting, threatening to block flow under bridge/culvert.	Watch Orange
	Debris build up obstructing flow backing up water and will overtop banks or is already flooding.	Warning Red
Embankment overtopping	Creek level is within 1 foot of top of bank.	Watch Orange
	Creek level is overtopping bank.	Warning Red
Sabotage/Vandalism	Facility or levee damage that could adversely impact flows.	Monitor Yellow
	Facility or levee damage that is affecting flows or causing minor leakage in levees or significant levee damage during low flows.	Watch Orange
	Facility damage that is blocking flows that will result in flooding or levee damage that will likely result in failure or has failed during high flows.	Warning Red
Earthquake	Magnitude 6.0 or greater within 50 miles of creek with flows below 70% of capacity and not expected to rise.	Monitor Yellow
	Magnitude 6.0 or greater within 50 miles of creek with flows below 70% of capacity with visible damage to bridges, facilities, or levee movement or cracking.	Watch Orange
	Magnitude 6.0 or greater within 50 miles of creek with damage to levees or facilities that are affecting flows, bridge failure, levee cracking or leaking or movement but minor risk of flooding.	Watch Orange
	Magnitude 6.0 or greater within 50 miles of creek with damage to levees or facilities that are affecting flows, bridge failure, levee cracking or leaking or movement when flows are above 70% of capacity or forecast to be rising.	Warning Red
Tide Gate Failures	If tide gates are stuck open, a tide gate concrete structure is cracked or compromised, or if the elevation in the basin is unexpectedly increasing in depth due to tide elevation difference.	Monitor Yellow
	If any of the Monitor conditions are present and a storm is occurring or expected to occur within 72 hours.	Watch Orange
	If any of the Monitor conditions are present and a storm or tides are expected that may cause flooding within 24 hours.	Warning Red

ATTACHMENT 1
Guidance Table for Evaluating Facility
During High Flow and Determining the Condition Level (continued)

EVENT	SITUATION	CONDITION LEVEL*
Tsunami	A Tsunami is possible. Arrival time is several hours away.	Monitor Yellow
	Dangerous waves or tide increase possible of 1-3 feet in height	Watch Orange
	Tsunami is imminent with waves or tide increase of more than 3 feet in height with likely flooding	Warning Red

*Table 1 of EAP describes the flood condition levels.

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ATTACHMENT 2

Emergency Remedial Actions

If time and conditions permit, the following emergency remedial actions should be considered for emergency situations provided they would be effective and can be done safely. Immediate implementation of these remedial actions may delay, moderate, or prevent flooding. Several of the listed adverse or unusual conditions may occur along the creek at the same time, requiring implementation of several modes of remedial actions. Close monitoring of the creek must be maintained to confirm the success of any remedial action taken along the creek.

A. BANK EROSION

1. If the erosion is threatening public health and safety and water is no longer rising with stream velocity is low enough, erosion scour may be filled with rock, sandbags, plastic sheeting or materials to prevent further loss of soil.

B. BOILS OR SEEPAGE BEHIND LEVEE OR FLOODWALL

1. Monitor creek level and seepage flow until seepage stops.
2. Inspect slopes to determine if the entrance to the seepage origination point is visible (whirlpool) and accessible. Attempt to plug entrance with readily available material such as soil, rockfill or plastic sheeting if conditions are safe.
3. Cover the seepage exit area (s) with sand or gravel to hold fine-grained soils in place. Alternatively, construct a sandbag or other type of ring dike around the seepage exit area to retain a pool of water, providing backpressure and reducing the erosive nature of the seepage.
4. Do not drive vehicles or equipment between the seepage area and the creek to avoid collapse of any underground voids.

C. LEVEE DAMAGE

1. Settlement of crest may be filled with sandbags or earth and rockfill materials in the damaged area to restore freeboard.
2. Sloughing may be stabilized by placing a soil or rock filled buttress against the toe of the sloughing.

D. EMBANKMENT OVERTOPPING

1. If water level is no longer rising, place sandbags along the low areas of the top of the bank/levee to reduce flow concentration during minor overtopping.
2. Assess whether to recommend reduction in operation of storm drain pump stations that may impact the area of overtopping (e.g., pump stations upstream of overtopping).

ATTACHMENT 2
Emergency Remedial Actions (continued)

E. DOWNED TREES/BLOCKAGE

1. Where it is safe to do so, clear debris and downed trees that pose a threat to obstructing flow. Clear bridge pier noses and trash racks.

F. EARTHQUAKE

1. Immediately conduct a visual inspection of the levees if a magnitude 6.0 or greater earthquake occurs within 50 miles of Santa Clara County.
2. If time allows, perform a field survey to determine if there has been any settlement or movement of levees.
3. Visually inspect creek for any movement or damage along the creek including creek banks, outlets, bridges, access ramps.

G. TIDE GATE STRUCTURE FAILURES

1. If any or all of the tide gates are stuck open and water elevation in the flood basin is rising, the City of Palo Alto and Valley Water staff will evaluate the situation and determine appropriate repair method. (Note: If repair requires stop logs to be used to isolate the bay, they may not seal due to damage and wear to the concrete.)
2. If the tide gate structure fails, depending on the type of failure, such as cracks or more severe failures of gates, mountings, or concrete, Valley Water staff will determine the appropriate repair method.
3. If the elevation in the flood basin is rising and it is determined that it is likely from piping under the tide gate structure or levee, efforts will be made to identify the location of the piping and Valley Water staff will evaluate and recommend potential repairs.

H. TSUNAMI

1. Immediately conduct a visual inspection of appropriate facilities if a wave or increase in tide of over 1 foot is expected to occur that could impact the facility

ATTACHMENT 3

Management Action List

- Management is generally the lead of the DOC/EOC activation and varies depending on activation levels. In the early activation stages, the level of Management Section staffing may be a Unit Manager filling the position of DOC/EOC Director, such as the Watershed Field Ops Manager of Watersheds. At the Watch and Warning activation levels the Management Section staff serving as the EOC Director would likely be a Chief Operating Officer.
- Management Section has the authority to assign resources and implement Action Plans that are developed under their oversight.
- Staff assigned and directed by Management Section may be provided with specified authorities to act as their delegate unless they are filling another EAP personnel position (e.g., Planning/Intelligence).
- Public Information, Liaisons, Logistics, and Finance are part of the Management Section.

PURPOSE:

- Serve in the Management Section roles in the DOC and/or EOC.
- Assure all sections are staffed and assigned adequate authorities to implement the EAP.
- Direct actions to facilitate the EAP.
- Allocate agency resources to address EAP as needed.
- Provide directives and affect emergency orders.
- City makes final decision on the level of their activation and on evacuation orders.

WHO MAY BE DESIGNATED:

City	Valley Water
<ul style="list-style-type: none"> • City Manager • Assistant City Manager • Deputy City Manager 	<ul style="list-style-type: none"> • Chief Operating Officer or delegate <ul style="list-style-type: none"> ○ Information Technology & Administrative Services ○ Watersheds ○ External Affairs ○ Water Utility

ATTACHMENT 3 Management Action List (continued)

ACTIONS:

	Responsibility/Activity	Stakeholder*
Preparedness (Green)	Conduct Winter Preparedness Workshop.	OES is lead.
	Manage assigned Valley Water webpages.	External Affairs and OES
	Participate in annual EAP review/exercise/updates; ensure plan is functional and up to date.	Valley Water is lead.
	Ensure EAP and Contact/Roles list is reviewed and updated and provide revisions to Stakeholders.	Watersheds Operations & Maintenance Division
	Provide resources to support on-going activity to support this EAP and mitigation efforts along waterways.	Each Stakeholder is lead for own agency resources.
Monitoring (Yellow)	Activate the EAP for "Monitoring."	Valley Water is lead.
	Determine level of DOC/EOC staffing after consult with OES.	Valley Water is lead.
	Assign staff to report and act as liaison to designated EOC facility when directed, and available.	Each Stakeholder responds to designated EOC facility.
	Provide public education.	Each Stakeholder collaborates and is lead to their constituents.
	Provide information to Elected Officials.	Each Stakeholder PIO is lead for own agency.
	Identify conditions for activating next level after consult Planning/Intelligence, Operations, and OES.	Valley Water is lead.
Watch (Orange)	Activate the EAP for "Watch."	Valley Water is lead.
	Allow the DOC to manage field response.	Each Stakeholder is lead within agency resources.
	Provide information on impact and available resources to and from respective EOCs.	Each Stakeholder is lead for own agency resources.
	Direct liaison staff to report to designated EOC facility, as available.	EOC Director
	Assess conditions for activating next level.	Valley Water EOC Director
	Confer with legal staff on process for proclaiming a Local Emergency.	City EOC Directors are lead.
Warning** (Red)	Activate the EAP for "Warning."	Valley Water is lead.
	Assign staff to report and act as liaison to designated EOC facility when directed, if not already done.	Valley Water is lead.
	Provide public warning and shelter information in multiple languages.	Cities are lead. County is key support.
	Implement evacuation plans and deploy resources to evacuate.	Cities are lead.
	Contact City EOC regarding any concerns regarding pump station operations if appropriate.	Valley Water is lead.
	Proclaim Local Emergency as appropriate.	City EOC Directors are lead.
*If only one Stakeholder is noted as lead, all other Stakeholders support the effort.		
**If not listed, all Watch responsibilities apply to the Warning level.		

ATTACHMENT 4

Planning/Intelligence Action List

- Planning/Intelligence Section documents and communicates Action Plans, maintains other information logs (e.g., Situation Summary form #209) related to the event and provides Subject Matter Experts.
- Staff filling the role are generally engineering or technical staff from Watersheds Stewardship & Planning Division or other technical divisions of Watersheds.
- Critical Subject Matter Experts are staff of HH&G that are responsible for the ALERT gauges, watershed modeling, floodplain mapping and flood/storm forecasts.

PURPOSE:

- Provide hydrological, geological, and water way estimated assessments.
- Provide expertise on flood management operations and estimated impacts on critical infrastructure including utilities and transportation.

WHO MAY BE DESIGNATED:

City Stakeholders	Valley Water
<ul style="list-style-type: none"> • Public Works • Transportation • Community Development 	<ul style="list-style-type: none"> • Watersheds Operations & Maintenance Division (O&M) <ul style="list-style-type: none"> ○ O&M Engineering Support Unit (O&MES) ○ Watershed Field Operations Unit (WFOU) • Watersheds Stewardship & Planning Division <ul style="list-style-type: none"> ○ Hydrology, Hydraulics & Geomorphology Unit (HH&G) • Watersheds Design & Construction Division

ACTIONS:

	Responsibility/Activity	Stakeholder*
Preparedness (Green)	Provide technical data on mitigation and preparedness measures.	Each Stakeholder is lead for own agency resources.
	Conduct field inspections of creeks and facilities including tide gates and pumps.	O&MES/WFOU/City Stakeholders are lead in own right of way.
	Address property management needs and plans.	O&M, City Stakeholders are responsible.
	Perform mitigation work to reduce flood risk when feasible.	WFOU, VFOU, Design & Construction, City Stakeholders are lead on own property.
	Develop materials and provide training for Field Information Teams.	HH&G is lead.

ATTACHMENT 4
Planning/Intelligence Action List (continued)

	Responsibility/Activity	Stakeholder*
Preparedness (Green)	Provide technical floodplain mapping expertise. Provide electronic link to Design Storm (e.g., 10-year, 25-year and/or 100-year) flood maps for creeks included in Appendices if desired and possible.	HH&G
	Maintain equipment, gauges, telemetry, communications systems, etc.	HH&G is lead for Valley Water stream gauges and equipment. Cities are lead for cities equipment.
	Develop and maintain computer models of watersheds and creeks.	HH&G
	Participate in Winter Preparedness Workshop.	Valley Water and Stakeholders
	Manage technical information in assigned Valley Water web pages.	HH&G
	Support and Coordinate with FEMA Floodplain Managers who maintain the National Flood Insurance Program Community Rating System certification.	Watersheds and Office of Civic Engagement
	Implement and enforce building codes for building in floodplains.	Cities are lead.
	Participate in annual EAP review/exercise/updates; ensure plan is functional and up to date.	O&M and all appropriate Stakeholders.
	Manage flood information websites.	HH&G, PIO and City Stakeholders manage own site; points to Valley Water for flow and other related information.
Monitoring (Yellow)	Notify staff of own agency about the increased condition level.	Each Stakeholder is lead for their staff.
	Conduct formal monitoring, communicate via virtual systems; communicate with other EOCs.	Each Stakeholder EOC is lead for own agency resources.
	Communicate risk to EOC personnel in Action Planning meetings.	Each Stakeholder EOC is lead within their agency.
	Report to and act as liaison to designated EOC facility when directed, and available.	Each Stakeholder responds to designated EOC facility as available.
	Review evacuation planning needs.	Cities are lead.
Watch (Orange)	Communicate risk to EOC representatives.	Each Stakeholder is lead within their agency.
	Notify staff of own agency about the increased condition level.	Each Stakeholder EOC is lead for own agency.
	Provide information to and from respective EOCs, including status reports and briefings.	Each Stakeholder EOC is lead.
	Report to and act as liaison to designated EOC facility when directed, and available.	Each Stakeholder responds to designated EOC facility as available.

ATTACHMENT 4
Planning/Intelligence Action List (continued)

	Responsibility/Activity	Stakeholder*
	Update computer modeling based on forecast and watershed conditions and, if possible and deemed necessary, provide forecast flood maps to City and, if requested, to other Agency Stakeholders.	HH&G
	Assess whether local drainage pump stations should modify operations.	HH&G
Warning** (Red)	Report to and act as liaison to designated EOC facility when directed, and available.	Each Stakeholder responds to designated EOC facility as available.
	Communicate risk to EOC representatives in Action Planning meetings.	Each Stakeholder EOC is lead within their agency.
	Update computer modeling based on forecast and watershed conditions and, if possible and deemed necessary, provide forecast flood maps to City and, if requested, to other Agency Stakeholders.	HH&G
	Assess whether local drainage pump stations should modify operations.	HH&G
*If only one Stakeholder is noted as lead, all other Stakeholders support the effort. **If not listed, all Watch responsibilities apply to the Warning level.		

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ATTACHMENT 5

Operations Action List

- Staff of Watersheds Operations & Maintenance Division are often the first to respond incidents and activate a DOC and assign an Incident Commander before the EOC is activated.
- Operations Section coordinates deployment of Field Information Teams.
- Operations implements the field activities and other duties assigned in EOC Action Plans.

PURPOSE:

- Operations Section primary role is to respond to storm events and coordinate actions as appropriate between the Stakeholders to prepare and respond to related events. Recommend assignment of resources from their respective agency for comprehensive support to the storm conditions and storm related incidents.

WHO MAY BE DESIGNATED:

City	Valley Water
EOC Operations Section staff may include: <ul style="list-style-type: none"> • Public Works • Transportation • Utilities • Police • Fire • Emergency Services • Community Development 	<ul style="list-style-type: none"> • Watersheds Operations & Maintenance Division (O&M) <ul style="list-style-type: none"> ○ Operations & Maintenance Engineering Support Unit (O&MES) ○ Watershed Field Operations Unit (WFOU) ○ Vegetation Field Operations Unit (VFOU) • Watersheds Stewardship & Planning Division <ul style="list-style-type: none"> ○ Hydrology, Hydraulics & Geomorphology Unit (HH&G) • Watersheds Design & Construction Division

ACTIONS:

	Responsibility/Activity	Stakeholder*
Preparedness (Green)	Provide technical data on mitigation and preparedness measures.	Each Stakeholder is lead for own agency resources.
	Jointly discuss property management needs and plans as appropriate.	Each parcel owner is responsible.
	Inventory and Procure Flood Fighting Materials and Equipment.	WFOU/Each Stakeholder is lead for own materials and equipment.
	Participate in Winter Preparedness Workshop.	Valley Water and City Stakeholders are lead.
	Participate in annual EAP review/exercise/updates; ensure plan is functional and up to date.	O&MES

ATTACHMENT 5
Operations Action List (continued)

	Responsibility/Activity	Stakeholder*
	Update EAP and Contact/Roles list and provide revisions to Stakeholders.	O&M is lead.
	Update Emergency Communications Plan and notification systems.	Cities are lead. County is key support for warning.
Monitoring (Yellow)	Notify staff of own agency about the increased condition level.	Each Stakeholder is lead for their staff.
	Communicate risk to EOC representatives.	HH&G/O&M/City Stakeholders
	Respond to and mitigate minor events as needed (examples of remedial actions are listed in Attachment 2); coordinate with each responding agency.	WFOU/City Stakeholders are lead for own materials and equipment.
	Inspect and clean Trash Racks, Bridge Piers and Tide Gates.	WFOU
	Stage equipment at localities likely to be affected as needed; coordinated with each responding agency.	WFOU/City Stakeholders are lead for own materials and equipment.
	Report and act as liaison to designated EOC facility when directed, and available.	Each Stakeholder responds to designated EOC facility as available.
	Provide sandbags/flood fighting materials for the public (locations shown in Attachment 7).	VFOU
	Confer with EOC Director on conditions for activating next level.	HH&G/O&M
	Identify location for flood fighting resources for the public (e.g., sandbag locations). May begin planning for establishment of special temporary sandbag locations (Attachment 10).	O&M/VFOU
	Review evacuation planning needs.	Cities are lead.
Watch (Orange)	Manage information from the Department Operations Center.	O&M/City Stakeholders are lead within their agency.
	Allow the DOC to manage field response.	O&M/City Stakeholders are lead within their agency.
	Notify staff of own agency about the increased condition level.	Each Stakeholder is lead for own agency.
	Confer with responding Agency Stakeholders to determine response coordination needs and resources needs.	O&M/City Stakeholders are equally responsible for cross coordination.
	Respond to and mitigate minor events as needed (examples of remedial actions are listed in Attachment 2); coordinate with each responding agency.	WFOU and City Stakeholders are lead for own jurisdiction.
	Inspect and clean Trash Racks, Bridge Piers, and Tide Gates.	WFOU
	Stage equipment at localities likely to be affected as needed; coordinated with each responding agency.	WFOU and City Stakeholders are lead for own materials and equipment.
	Provide sandbags/flood fighting materials for the public (locations shown in Attachment 7).	VFOU
	Update location for flood fighting resources for the public and supply additional resources as needed (e.g., sandbag locations). May establish special temporary sandbag sites.	O&M/VFOU

ATTACHMENT 5
Operations Action List (continued)

	Responsibility/Activity	Stakeholder*
Watch (Orange)	Deploy and/or activate public notification as appropriate.	Cities are lead.
	Provide information on impact and available resources to and from respective EOCs.	O&M and City Stakeholders are lead for own agency resources.
	Provide information to and from respective EOCs, including status reports and briefings.	Each Stakeholder EOC is lead.
	Report and act as liaison to designated EOC facility when directed, as available.	Each Stakeholder responds to designated EOC facility as available.
	Confer with EOC Director on conditions for potential evacuation and shelter support.	Cities are lead.
Warning** (Red)	Report and act as liaison to designated EOC facility when directed, if not already done.	Each Stakeholder responds to designated EOC facility as available.
	Inspect and clean Trash Racks, Bridge Piers, and Tide Gates.	WFOU
	Provide sandbags/flood fighting materials for the public (locations shown in Attachment 7).	O&M/VFOU
	Implement evacuation plans and deploy resources to evacuate.	Cities are lead.
	Coordinate resources through respective EOCs.	Each Stakeholder EOC is lead for own resources.
*If only one Stakeholder is noted as lead, all other Stakeholders support the effort. **If not listed, all Monitor and Watch responsibilities apply to the Warning level.		

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ATTACHMENT 6

Field Information Team Action List

- Field Information Teams (FIT) are Valley Water staff who have either volunteered or have been assigned to be deployed in the field to make observations during storm and high flow events. They may be directed in their assignments by Operations, Subject Matter Expert from the Hydrology, Hydraulics & Geomorphology Unit (HH&G), FIT Coordinator ([Attachment 10](#)), or by the DOC/EOC Planning/Intelligence Section.
- Field Information Teams preferably have some knowledge or expertise relative to storms and flood events and ideally the location assigned.
- A Field Information Team is composed of at least two people who have been trained and adequately equipped and are generally trained and selected by HH&G.

PURPOSE:

- Visually identify and verify areas on the creek that need attention during storm and flood events.
- Provide real-time on-the-ground information to decision makers in the DOC/EOC.
- Document events with notes, logs, photos, drawing, and maps that will be utilized after an event occurs for analysis, public meetings, planning studies, and documentation.

WHO DESIGNATED:

- Valley Water personnel

ACTIONS:

	Responsibility/Activity
Preparedness (Green)	Volunteer to be trained as a Field Information Team (FIT) member.
	Receive approval from immediate supervisor to be a FIT member.
	Receive training as a FIT.
	Provide current contact information to the FIT coordinator.
Monitoring (Yellow)	Report to the duty if called and available and go to assigned location(s). Generally assigned locations to observe the depth of water at the flood hot spots (e.g., Permanente Creek Diversion).
	Report observations to the FIT coordinator, DOC, or EOC.
	Document events as trained utilizing equipment provided.
	Notify FIT Coordinator, DOC, or EOC if staff from another agency is assigned to the same location.

ATTACHMENT 6
Field Information Team Action List (continued)

Responsibility/Activity	
Watch (Orange)	Report to the duty if called and available and go to assigned location(s). Generally assigned locations to observe the depth of water at the flood hot spots (e.g., Permanente Creek Diversion).
	Report observations to the FIT coordinator, DOC, or EOC.
	Document events as trained utilizing equipment provided.
	Notify FIT Coordinator, DOC, or EOC if staff from another agency is assigned to the same location.
Warning (Red)	Report to the duty if called and available and go to assigned location(s). Generally assigned locations to observe the depth of water at the flood hot spots (e.g., Permanente Creek Diversion).
	Report observations to the FIT coordinator, DOC, or EOC.
	Document events as trained utilizing equipment provided.
	Notify FIT Coordinator, DOC, or EOC if staff from another agency is assigned to the same location.

ATTACHMENT 7

Public Information Officer Action List

PURPOSE:

- Provide public communications before, during and after a flood emergency.
- Prepare and coordinate public message between agencies.
- Provide public notification.
- Communicate with Elected Officials

WHO MAY BE DESIGNATED:

City	Valley Water
<ul style="list-style-type: none"> • Communications Director • Designated city reps 	<ul style="list-style-type: none"> • Office of the Chief of External Affairs <ul style="list-style-type: none"> ○ Office of Communications (OC) ○ Office of Civic Engagement ○ Office of Government Relations • Watersheds Stewardship & Planning Division <ul style="list-style-type: none"> ○ Hydrology, Hydraulics & Geomorphology Unit (HH&G)

ACTIONS:

	Responsibility/Activity	Stakeholder*
Preparedness (Green)	Participate in Winter Preparedness Workshop.	Valley Water Emergency Services and Security Unit is lead and appropriate stakeholders participate.
	Participate in annual EAP review/exercise/updates; ensure public components of EAP are functional and up to date.	OC
	Publish Preparedness Public Outreach (e.g., Winter Preparedness).	OC
	Manage the information provided in the Valley Water website.	OC/HH&G
	Provide public education regarding flooding. Stakeholders should communicate and coordinate on outreach.	OC and City Stakeholders are lead for own agency resources.
	Update Emergency Public Communications Plan and notification systems.	Cities are lead. County is key support for warning.
Monitoring (Yellow)	Notify staff of own agency about the increased condition level.	Each Stakeholder EOC is lead for their staff.
	Provide public education regarding flooding. Stakeholders should communicate on outreach.	OC and City Stakeholders collaborate and are lead to their constituents.
	Provide information to Elected Officials.	Each Stakeholder PIO is lead for own agency.

ATTACHMENT 7
Public Information Officer Action List (continued)

	Responsibility/Activity	Stakeholder*
Watch (Orange)	Notify staff of own agency about the increased condition level.	Each Stakeholder EOC is lead for own agency.
	Provide public information in multiple languages.	OC and City Stakeholders collaborate and are lead to their constituents.
	Provide public warning in multiple languages.	Cities are lead. County is key support.
	Deploy Long Range Acoustic Device or other public notification as appropriate.	Cities are lead.
	Provide information to Elected Officials.	Each Stakeholder PIO is lead for own agency.
	Activate Joint Information System (JIS) and if appropriate a Joint Information Center (JIC) as appropriate.	Cities are lead.
	Report to designated Joint Information Center (JIC) when directed, and available.	Each Stakeholder responds to designated JIC as available.
	Communicate with media as needed.	Each Stakeholder PIO is lead for own agency.
Warning (Red)	Provide public information in multiple languages.	OC and City Stakeholders collaborate and are lead to their constituents.
	Provide public warning and shelter information in multiple languages.	Cities are lead. County is key support.
	Activate JIS/JIC as appropriate to jointly communicate with media.	Cities are lead.
	Report to designated Joint Information Center (JIC) when directed, and available.	Each Stakeholder responds to designated JIC as available.
	Coordinate resources through respective EOCs.	Each Stakeholder EOC is lead for own resources.
*If only one Stakeholder is noted as lead, all other Stakeholders support the effort.		
**If not listed, all Watch responsibilities apply to the Warning level.		

ATTACHMENT 7 Public Information Officer Action List (continued)

Are you flood ready?

YOU LIVE IN A FLOOD ZONE

Know your flood risk

Sign up for alerts

Get sandbags

Extreme weather is here, and we all need to prepare for storms and the potential for floods.

You received this postcard because your Santa Clara County home or business is in a Special Flood Hazard Area as identified in the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map.

Don't get caught unprepared—be flood-safe with tips from Valley Water.

El clima se ha vuelto extremo por lo que debemos prepararnos para las tormentas y la posibilidad de inundaciones.

Usted recibió esta postal porque su hogar o negocio del condado de Santa Clara está ubicado en una Zona Especial de Riesgo de Inundaciones, según la identificación del Mapa de Tasas de Seguro contra Inundaciones de FEMA.

Que las tormentas no lo tomen desprevenido; manténgase a salvo de las inundaciones con estos consejos de Valley Water.

Thời tiết khắc nghiệt đang diễn ra tại đây, và tất cả chúng ta cần chuẩn bị sẵn sàng ứng phó với bão và khả năng xảy ra lũ lụt.

Quý vị nhận được bưu thiếp này vì nhà của hoặc cơ sở kinh doanh của quý vị ở Hạt Santa Clara nằm trong Khu vực có Nguy cơ Lũ lụt Đặc biệt như được xác định trong Bản đồ Xếp hạng Bảo hiểm Lũ lụt của FEMA.

Đừng để mình rơi vào tình trạng không chuẩn bị—hãy giữ cho mình an toàn khi có lũ lụt với các mẹo từ Valley Water.

我们正面临极端天气，我们都需要针对暴风雨和洪水做好准备。

我们向您发送此明信片的原因：您位于 Santa Clara County 的住所或公司处于 FEMA 洪水保险费率地图中确定的特殊洪水危险区。

请勿掉以轻心——使用 Valley Water 的提示确保洪水安全。

ValleyWater.org/floodready

Valley Water

scvwd scvwd valleywater valleywater

GET FLOOD READY

- Develop an emergency plan.
- Put together your 3-day emergency kit.
- Download disaster emergency apps.
- Check if your home or business is in a FEMA Special Flood Hazard Area at valleywater.org/floodready.
- Get sandbags before a flood.
- Keep debris and trash out of streams.

¿Está preparado para las inundaciones?

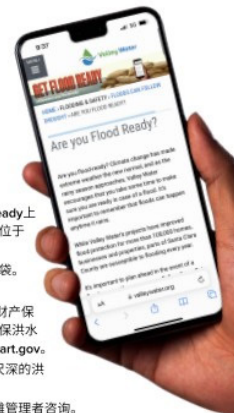
- Elabore un plan de emergencia.
- Arme su kit de emergencia de 3 días.
- Descargue aplicaciones para emergencias durante desastres.
- Revise si su hogar o negocio se encuentra en un área especial de riesgo de inundación de FEMA en valleywater.org/floodready.
- Consiga sacos de arena antes de una inundación.
- Mantenga los escombros y la basura fuera de los arroyos.
- Obtenga un seguro contra inundaciones con anticipación. La mayoría de las pólizas de seguro, como el seguro del propietario, no cubren los daños que ocasionan las inundaciones. Visite floodsmart.gov.
- Comprenda los riesgos de las inundaciones poco profundas; no conduzca por agua estancada.
- Revise con el gerente de planicies aluviales de su ciudad o condado antes de construir.

Quý vị đã sẵn sàng ứng phó với ngập lụt chưa?

- Thiết lập một kế hoạch khẩn cấp.
- Tập hợp bộ dụng cụ khẩn cấp đủ dùng trong 3 ngày.
- Tải về các ứng dụng ứng phó thảm họa khẩn cấp.
- Kiểm tra xem nhà hoặc cơ sở kinh doanh của quý vị có nằm trong Khu vực đặc biệt có nguy cơ ngập lụt của FEMA hay không tại valleywater.org/floodready.
- Chuẩn bị các bao cát trước khi ngập lụt.
- Dọn sạch mảnh vụn và rác khỏi các dòng suối của chúng ta.
- Mua bảo hiểm lũ lụt trước. Hầu hết các hợp đồng bảo hiểm tài sản, chẳng hạn như bảo hiểm dành cho chủ sở hữu nhà, sẽ không bao trả thiệt hại do lũ lụt. Truy cập floodsmart.gov.
- Hiểu rõ các rủi ro ở vùng ngập nông không lái xe qua vùng nước đọng.
- Kiểm tra với viên chức quản lý vùng ngập lụt trên địa bàn thành phố hoặc quận của quý vị trước khi quý vị xây dựng công trình.

您做好防洪准备了吗？

- 制定应急计划。
- 将3天应急包放在一起。
- 下载灾害应急应用程序。
- 在 valleywater.org/floodready 上确认您的住宅或商家是否位于 FEMA 特别洪水危险区。
- 在发生洪水之前准备好沙袋。
- 让碎屑和垃圾远离河流。
- 提前购买防洪险。大多数财产保险，例如业主保险，是不承保洪水带来的损失。访问 floodsmart.gov。
- 切勿在积水中行车。一英尺深的洪水足以冲走一辆车。
- 建造之前，向市或县河滩滩管理者咨询。



ValleyWater.org/floodready

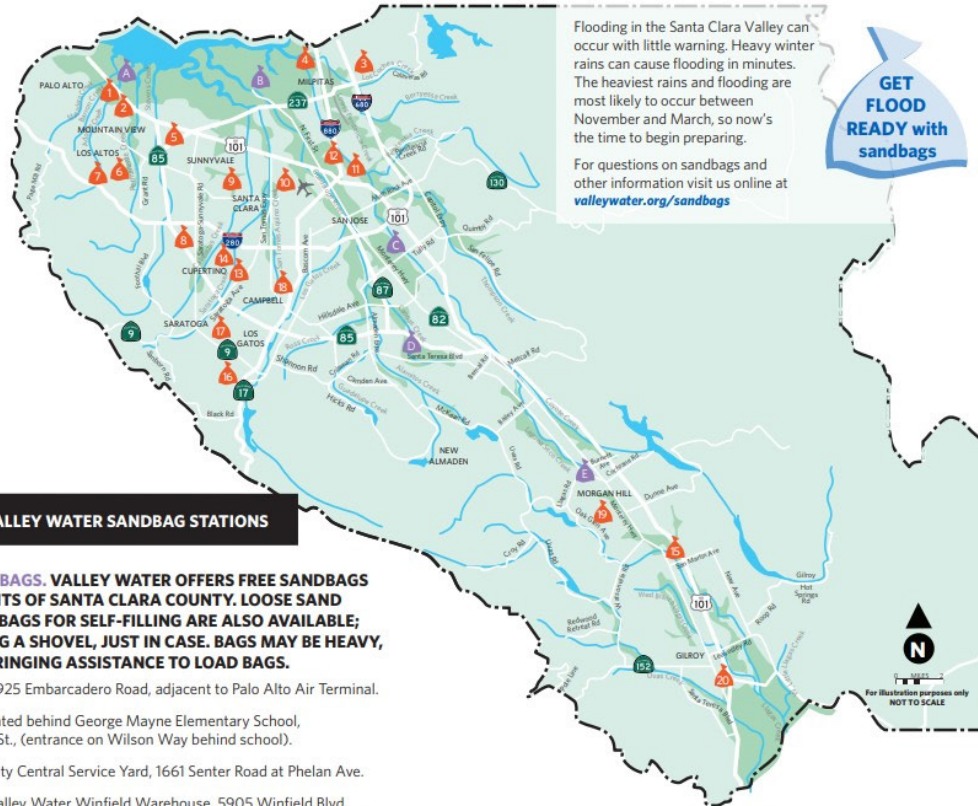


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ATTACHMENT 7 Public Information Officer Action List (continued)

Sandbag Locations



VALLEY WATER SANDBAG STATIONS

FILLED SANDBAGS. VALLEY WATER OFFERS FREE SANDBAGS FOR RESIDENTS OF SANTA CLARA COUNTY. LOOSE SAND AND EMPTY BAGS FOR SELF-FILLING ARE ALSO AVAILABLE; PLEASE BRING A SHOVEL, JUST IN CASE. BAGS MAY BE HEAVY, CONSIDER BRINGING ASSISTANCE TO LOAD BAGS.

- A. Palo Alto:** 1925 Embarcadero Road, adjacent to Palo Alto Air Terminal.
- B. Alviso:** Located behind George Mayne Elementary School, 5030 N 1st St., (entrance on Wilson Way behind school).
- C. San José:** City Central Service Yard, 1661 Senter Road at Phelan Ave.
- D. San José:** Valley Water Winfield Warehouse, 5905 Winfield Blvd., between Blossom Hill Rd. and Coleman Ave. Bag pickup street access only.
- E. Morgan Hill:** El Toro Fire Station, 18300 Old Monterey Rd., next to the Union Pacific Railroad overpass above Monterey Highway.

OTHER SOURCES OF UNFILLED SANDBAGS

BAGS AND SAND. OTHER SOURCES ALSO PROVIDE BAGS AND SAND. PLEASE BRING A SHOVEL AND ASSISTANCE FOR LOADING HEAVY BAGS, IF NECESSARY. BE AWARE THAT SOME SITES REQUIRE PROOF OF RESIDENCY:

- 1. Palo Alto:** Mitchell Park, 600 E. Meadow Dr. near baseball field. Bags and sand. 650-496-6974.
- 2. Palo Alto:** Rinconada Park Tennis Court Parking Lot (intersection of Hopkins Ave. and Newell Rd.). Filled bags. 650-496-6974.
- 3. Milpitas:** Sport Center Parking Lot at 1325 E. Calaveras Blvd. Filled bags. 408-586-2600, after hours: 408-586-2399.
- 4. Milpitas:** Hall Memorial Park Parking Lot, Cross Streets La Honda and Hermosa St. Bags and sand. 408-586-2600.
- 5. Mountain View:** Public Services, 231 N. Whisman Rd. Bags and sand at parking lot. Must bring shovel. 650-903-6395.
- 6. Los Altos:** Municipal Service Center, 707 Fremont Ave. at McKenzie Park parking lot. Bags and sand. 650-947-2785.
- 7. Los Altos Hills:** Corporation Yard, 27500 Purissima Rd. at Little League Field. Must bring bag and shovel. 650-941-7222.
- 8. Cupertino:** City Corporation Yard, 10555 Mary Ave. Bags and sand outside the gate. Must provide own shovel. 408-777-3269.
- 9. Sunnyvale:** Corporation Yard, 221 Commercial St. at end of California St. Filled bags. 408-730-7566, after hours: 408-730-7490.

"All 'Bags and Sand' sites are open 24 hours a day, 7 days a week unless otherwise noted."

LEGEND

- Creeks, rivers and reservoirs
- Flood prone areas
- City/County public works yards
- Valley Water maintained sites

- 10. Santa Clara:** City Corporation Yard, 1700 Walsh Ave. Filled bags at front door. Daytime: 408-615-3080, after hours: 408-615-5640.
- 11. San José:** City Mabury Yard, 1404 Mabury Rd. Bags and sand provided. 408-277-4373.
- 12. San José:** County East Yard, 1505 Schallenger Rd., 408-494-2750.
- 13. San José:** County West Yard, 11030 Doyle Rd. Bags and sand outside gate. Must bring shovel. 408-366-3100, after hours: 408-299-2507.
- 14. San José:** City West Yard, 5090 Williams Rd., Filled bags outside gate. 408-343-3100.
- 15. San Martin:** County South Yard, 13600 Murphy Ave. Bags and sand. 408-683-1240
- 16. Los Gatos/Monte Sereno:** 41 Miles Ave. at Balzer Field parking lot (Monte Sereno citizens pick up at Los Gatos site). Bags and sand. 408-399-5770, after hours: 408-354-8600.
- 17. Saratoga:** Corporation Yard, 19700 Allendale Ave., near Post Office. Self-fill bags. Bags and sand provided outside gate. 408-868-1245.
- 18. Campbell:** Service Center, 290 South Dillon Ave. Bags and sand available Monday through Friday from 7 a.m.-3 p.m. Must bring shovel. 408-866-2145.
- 19. Morgan Hill:** City Corporation Yard, 100 Edes Ct. Bags and sand outside gate. Must bring shovel. 408-776-7333.
- 20. Gilroy:** Corporation Yard, 613 Old Gilroy St. Bags and sand in the parking lot behind fire station. Must bring shovel. 408-846-0370.

valleywater.org

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ATTACHMENT 7
Public Information Officer Action List (continued)

GUIDANCE FOR PUBLIC COMMUNICATIONS DELIVERY METHODS
(City Stakeholders Are Lead)

1. ALERT SCC and IPAWS if warranted.
2. Deploy Long Range Acoustic Device if available and appropriate.
3. MEDIA NEWS RELEASE including ethnic media.
4. RADIO & TV STATIONS: Provide specific broadcast information.
5. SOCIAL MEDIA: Post message to NEXTDOOR, FACEBOOK, TWITTER, CITIES' WEBSITES, VALLEY WATER WEBSITE.
6. ENCAMPMENTS: Walk encampments in teams of 2 or more and share warnings.

Contact and provide downloadable flyer:

1. Inform administrators at At-Risk or Critical Facilities (e.g., SCHOOLS, CHURCHES, MEDICAL FACILITIES, TECHNOLOGY PARKS, etc.).
2. Contact managers at MOBILE HOME PARK OFFICES if appropriate.
3. Contact leaders at Chamber of Commerce, Downtown Associations to engage BUSINESS DISTRICT.
4. Place SANDWICH BOARD SIGNS ON MAJOR CORNERS: **Be alert to the likelihood of flooding in 24-72 hours.**
5. KNOCK-AND-TALK in at-risk neighborhoods. Staff prepared with numbers to call and basic info if asked.
6. Implement NO PARKING zones and, if necessary, detours.

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ATTACHMENT 8 Elected Officials Action List

PURPOSE:

- Coordinate with constituents.
- Check with respective PIO/Liaison or EOC Director on conditions.
- Coordinate information through the PIO/Liaison.

WHO DESIGNATED:

City	Valley Water
City Councilmember	Board of Directors

ACTIONS:

	Responsibility/Activity	Stakeholder*
Preparedness (Green)	Participate in Winter Preparedness Workshop as requested.	Valley Water is lead.
	Provide resources to support on-going activity to support this EAP and mitigation efforts along waterways.	Each Stakeholder is lead for own agency resources.
Monitoring (Yellow)	Communicate with PIO personnel regarding situation and public/media messages.	Each Stakeholder is lead for own agency resources.
	Respond to constituents.	Each Stakeholder is lead for own agency resources.
	Report any constituent concerns or observations to PIO liaison.	Each Stakeholder is lead for own agency resources.
Watch (Orange)	All Monitoring Responsibilities/Actions	Each Stakeholder is lead for own agency resources.
	Communicate with PIO at designated facility for more detailed briefing when requested, as available.	Each Stakeholder is lead.
Warning (Red)	All Watch Responsibilities/Actions	Each Stakeholder is lead for own agency resources.
	Respond to media and constituents with agreed upon messages.	Each Stakeholder is lead.
	Proclaim Local Emergency as appropriate.	Cities are lead.
*If only one Stakeholder is noted as lead, all other Stakeholders support the effort.		

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**ATTACHMENT 9
Emergency Services Contact List**

CONFIDENTIAL

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ATTACHMENT 9
Emergency Services Contact List (continued)

CONFIDENTIAL

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ATTACHMENT 10
Valley Water Emergency Responders Contact List

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**ATTACHMENT 10
Valley Water Emergency Responders Contact List (continued)**

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**ATTACHMENT 11
Available Resources**

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**ATTACHMENT 12
Equipment List**

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ATTACHMENT 13

Web-Based Data Sources

WEBCAMS:

- Webcam Site - <https://alert.valleywater.org/?p=map>
- McKelvey Park Flood Basin Webcam – <https://valleywateralert.org/scvwd/webcams/site.php?cid=9007>
- Permanente Diversion at Altamead Drive Webcam – <https://valleywateralert.org/scvwd/webcams/site.php?cid=9010>
- Hale Creek at Covington Road Webcam - <https://valleywateralert.org/scvwd/webcams/site.php?cid=9009>

RAIN GAUGES:

- Rain Gauge Site - <https://alert.valleywater.org/?p=map>

STREAM FLOW STATIONS & FLOODWATCH:

- Stream Flow Station Site - <https://alert.valleywater.org/?p=map>
- San Francisquito Creek at Stanford University (USGS Gauge) with Forecast & Thresholds – <https://waterdata.usgs.gov/ca/nwis/uv?11164500>, <https://water.weather.gov/ahps2/hydrograph.php?wfo=mtr&gage=sfcc1> or <https://alert.valleywater.org/?p=sensor&sid=5112&disc=f>
- Palo Alto Flood Basin – <https://alert.valleywater.org/?p=sensor&sid=7040&disc=f>
- Matadero Creek above Lambert Ave – <https://alert.valleywater.org/?p=sensor&sid=5101&disc=f>
- Adobe Creek at Foothill College – <https://alert.valleywater.org/?p=sensor&sid=5125&disc=f>
- Adobe Creek below El Camino Real – <https://alert.valleywater.org/?p=sensor&sid=5135&disc=f>
- Permanente Creek at Rancho San Antonio with Thresholds – <https://alert.valleywater.org/?p=sensor&sid=5120&disc=f>
- West Permanente Creek below Deer Farm – <https://alert.valleywater.org/?p=sensor&sid=5121&disc=f>
- Permanente Creek above Berry Ave with Thresholds – <https://alert.valleywater.org/?p=sensor&sid=5032&disc=f>

ATTACHMENT 13

Web-Based Data Sources (continued)

- Permanente Creek McKelvey Pump Sensor with Thresholds - <https://alert.valleywater.org/?p=sensor&sid=5146&disc=f>
- Hale Creek near Magdalena Court with Thresholds – <https://alert.valleywater.org/?p=sensor&sid=5033&disc=f>
- Stevens Creek above Stevens Creek Reservoir with Forecast – <https://alert.valleywater.org/?p=sensor&sid=5045&disc=f>
- Stevens Creek below Stevens Creek Reservoir with Forecast & Thresholds – <https://alert.valleywater.org/?p=sensor&sid=5044&disc=f>
- Stevens Creek above I-280 – <https://alert.valleywater.org/?p=sensor&sid=5039&disc=f>
- Stevens Creek above Hwy 85 near Central Ave with Thresholds – <https://alert.valleywater.org/?p=sensor&sid=5035&disc=f>

OTHER SITES:

- Valley Water Homepage – <http://valleywater.org/>
- Valley Water Submit a Request – <https://access.valleywater.org/s/>
- Report Blockages/Flooding – <https://access.valleywater.org/s/> or <https://www.valleywater.org/flooding-safety/flood-ready/report-creek-blockages-local-flooding>
- NWS Flood Severity – <https://water.weather.gov/ahps2/index.php?wfo=mtr>
- Valley Water Flood Protection Resources – <https://www.valleywater.org/floodready>
- Sandbags – <https://www.valleywater.org/floodready/sandbags>
- FEMA Flood Map Search – <https://msc.fema.gov/portal/search>
- FEMA NIMS ICS Forms – <https://training.fema.gov/icsresource/icsforms.aspx>
- Cupertino Emergency Preparedness – <https://www.cupertino.org/online-services/emergency-preparedness>
- City of Los Altos Storm Preparation – <https://www.losaltosca.gov/publicworks/page/storm-preparation-los-altos>
- City of Los Altos Floodplain Management Information – <https://www.losaltosca.gov/publicworks/page/floodplain-management-information>
- City of Los Altos Maintenance Service Request – <https://www.losaltosca.gov/publicworks/webform/maintenance-service-request>

ATTACHMENT 13
Web-Based Data Sources (continued)

- City of Los Altos Hills Emergency Preparedness – <https://www.losaltoshills.ca.gov/502/Emergency-Preparedness>
- Mountain View Emergency Preparedness – <https://www.mountainview.gov/our-city/departments/fire/emergency-preparedness>
- Mountain View Flood Protection and Insurance Information – <https://www.mountainview.gov/our-city/departments/public-works/flood-protection>
- City of Palo Alto Public Safety – <https://www.cityofpaloalto.org/Residents/Public-Safety>
- City of Palo Alto Emergency Preparedness – <https://www.cityofpaloalto.org/Departments/Emergency-Services/Emergency-Preparedness>
- City of Palo Alto Creek Monitor & Camera – <https://www.cityofpaloalto.org/Departments/Public-Works/Engineering-Services/Creek-Monitor-Cam>
- San Francisquito Creek Joint Powers Authority – <https://www.sfcjpa.org/>

WEATHER:

- NWS Watch, Warning, Advisory – <https://www.spc.noaa.gov/products/wwa/>
- NWS Forecasts – <https://graphical.weather.gov/sectors/pacsouthwest.php>

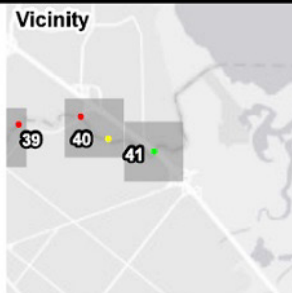
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ATTACHMENT 14

Field Information Team Hot Spots



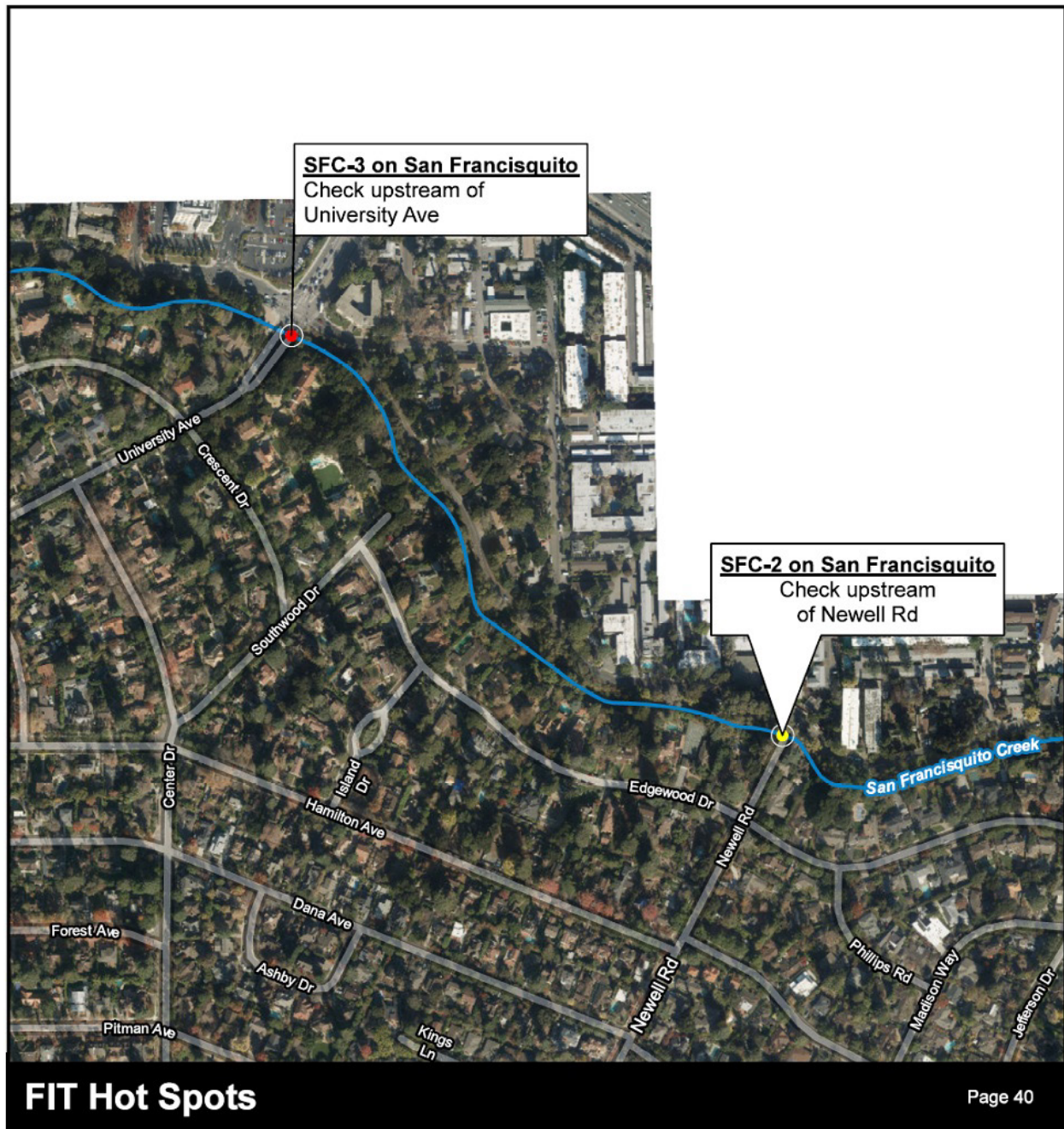
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Approximate Scale



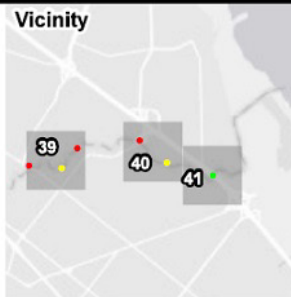
FIT Hot Spots
Priority
High ●
Medium ●
Low ●

GIS themes are for illustration and general analysis purposes only and are not accurate to surveying or engineering standards. Information is not guaranteed to be accurate, current, or complete and use of this information is your responsibility.
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ATTACHMENT 14 Field Information Team Hot Spots (continued)



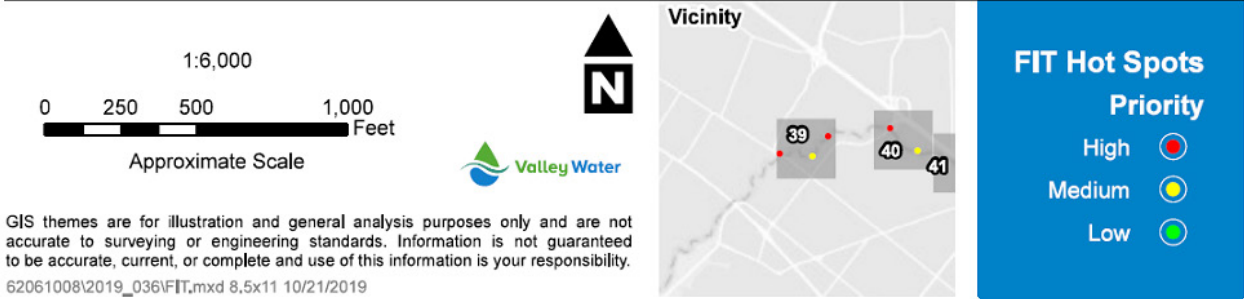
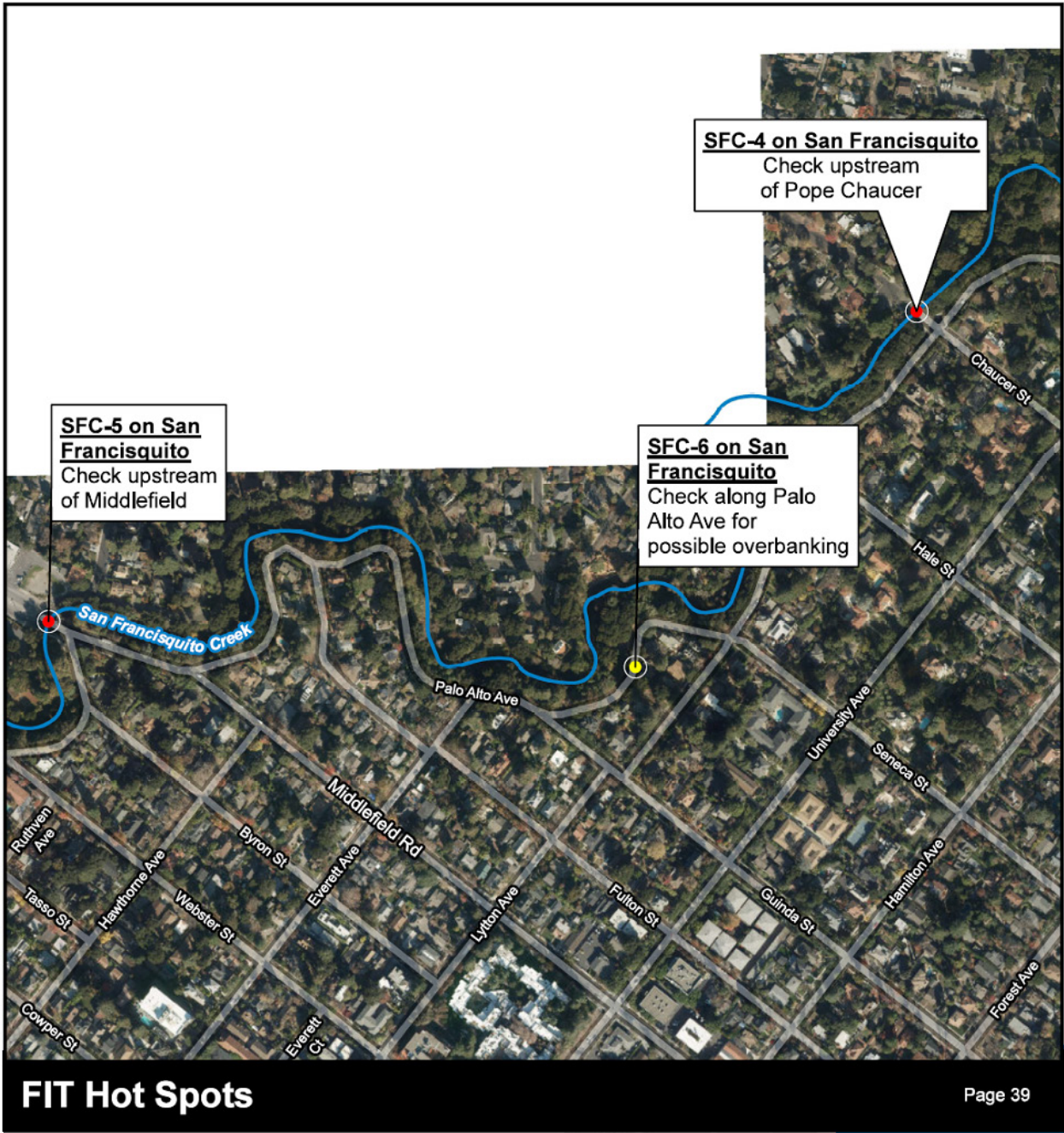
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Approximate Scale



FIT Hot Spots
Priority
High
Medium
Low

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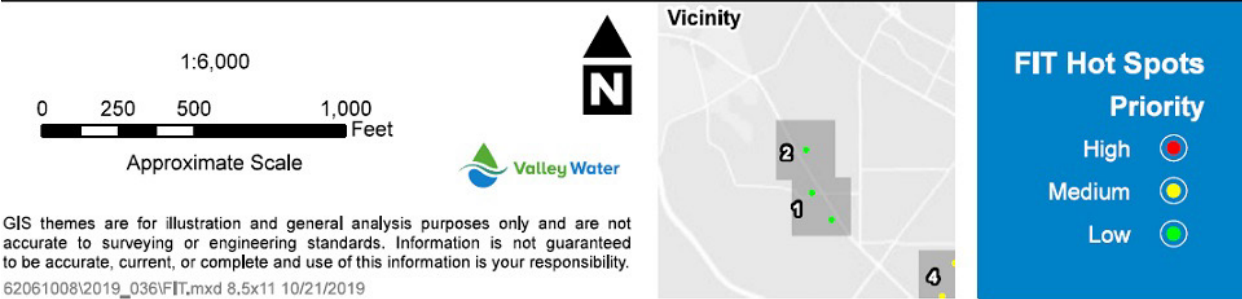
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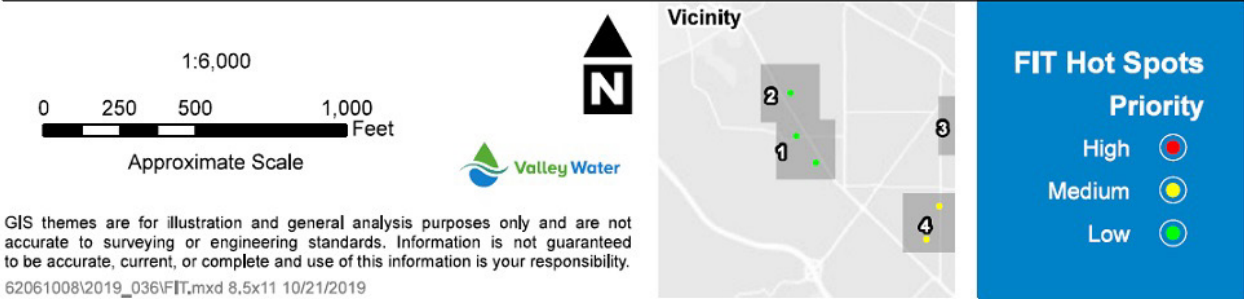
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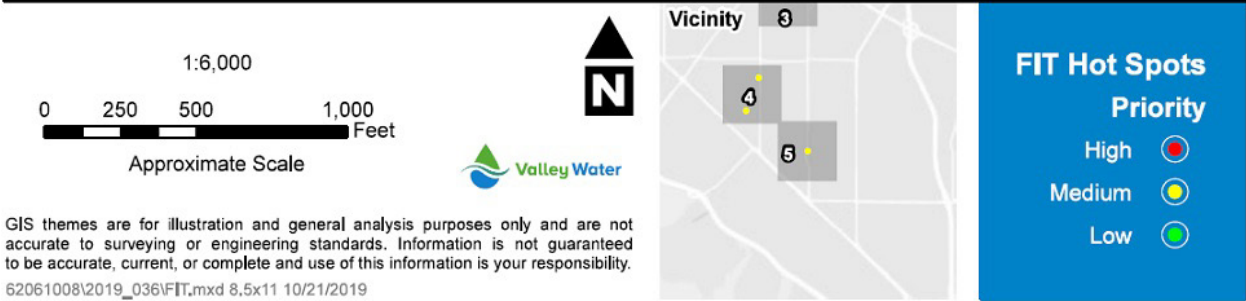
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Field Information Team Hot Spots (continued)



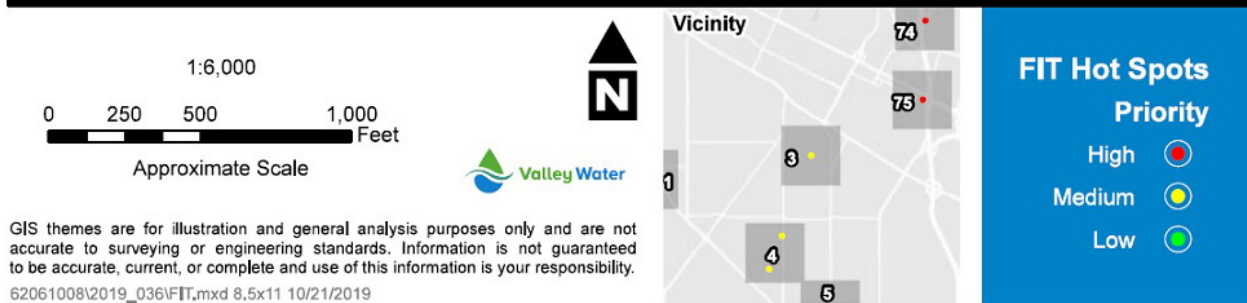
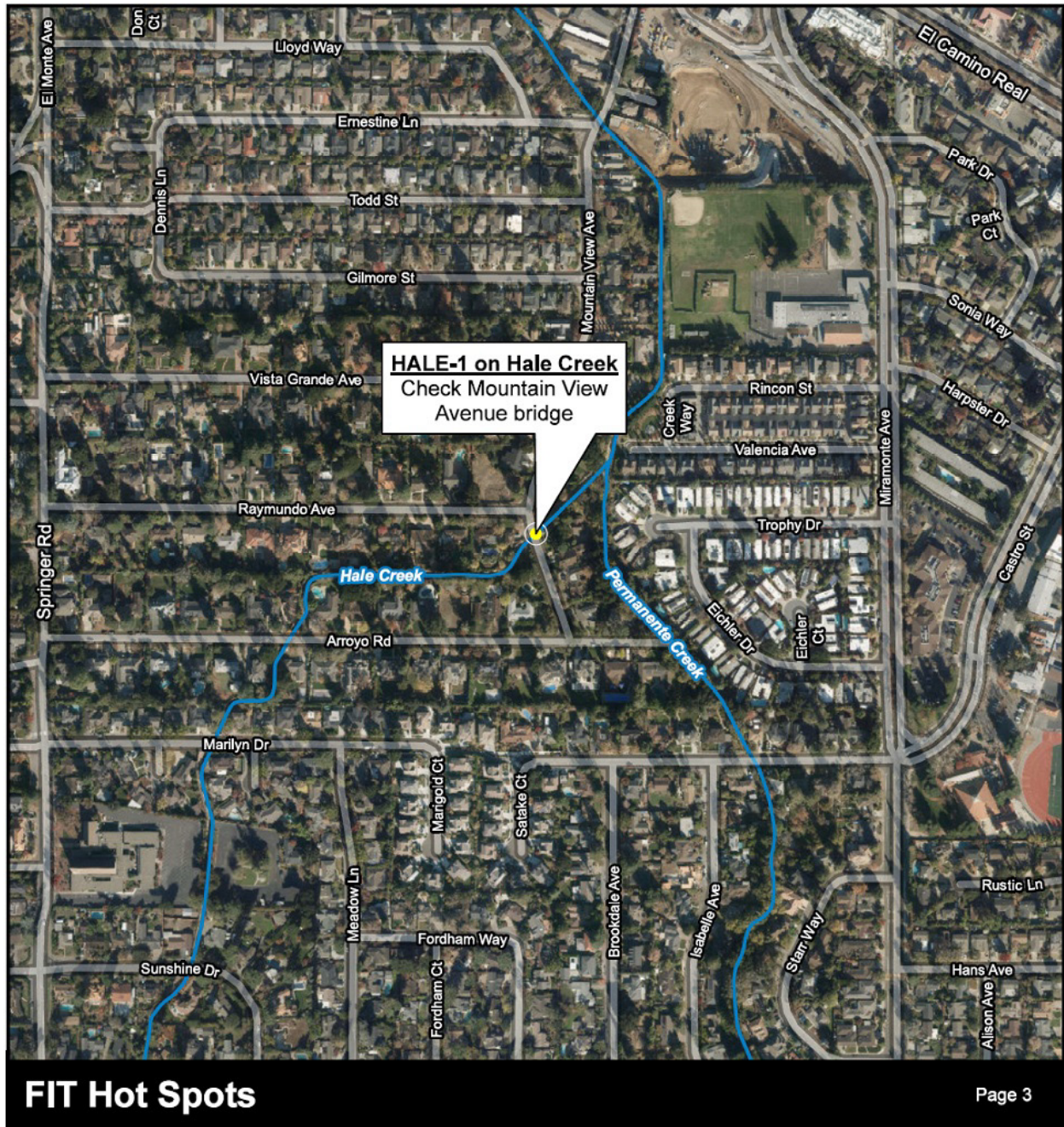
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Field Information Team Hot Spots (continued)



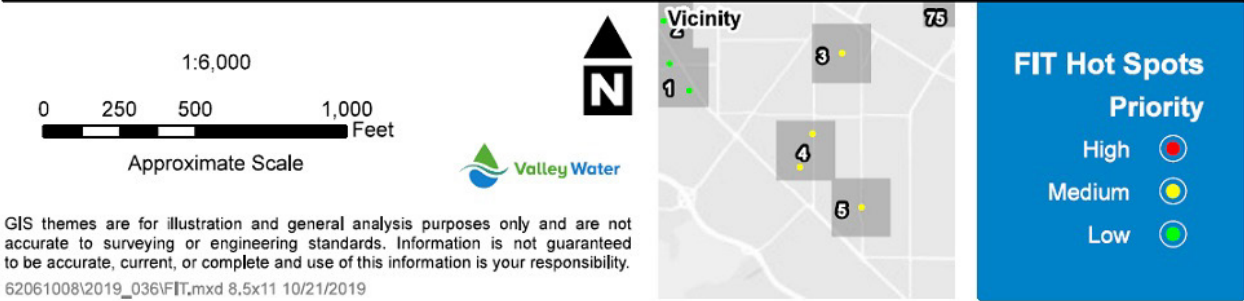
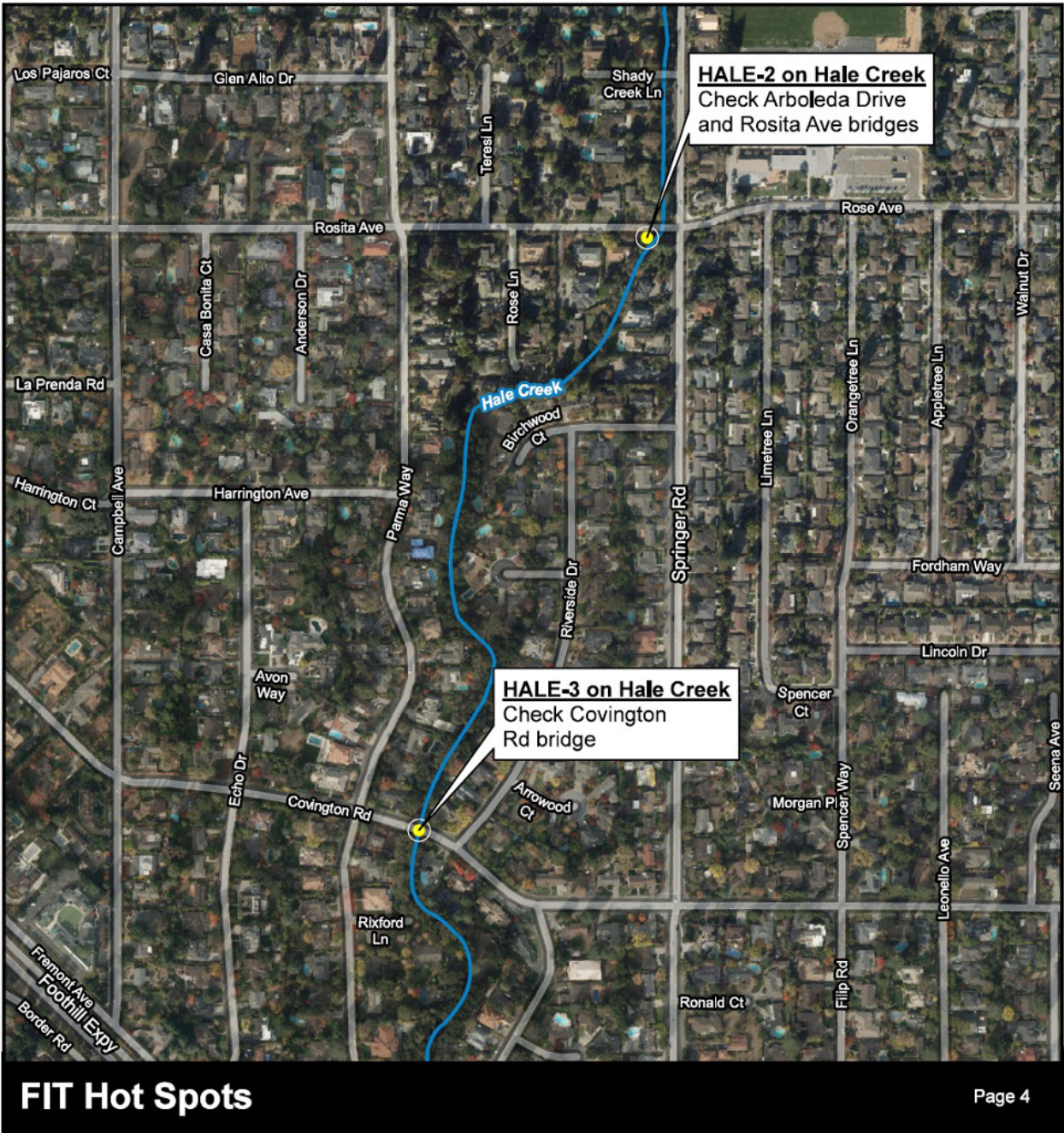
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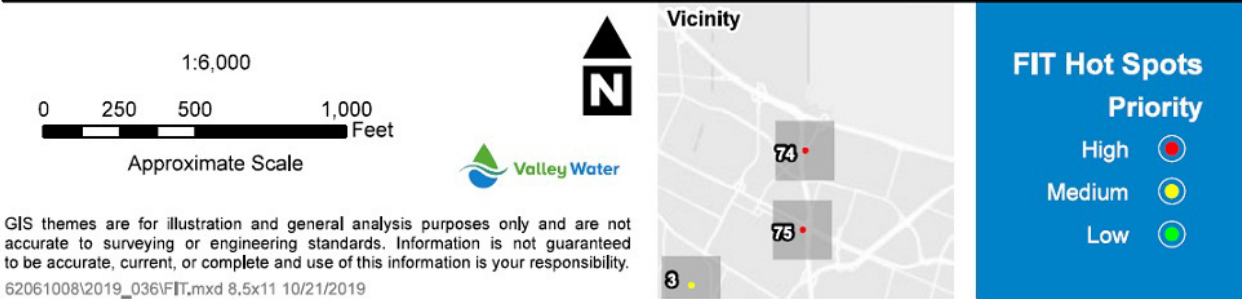
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ATTACHMENT 14
Field Information Team Hot Spots (continued)



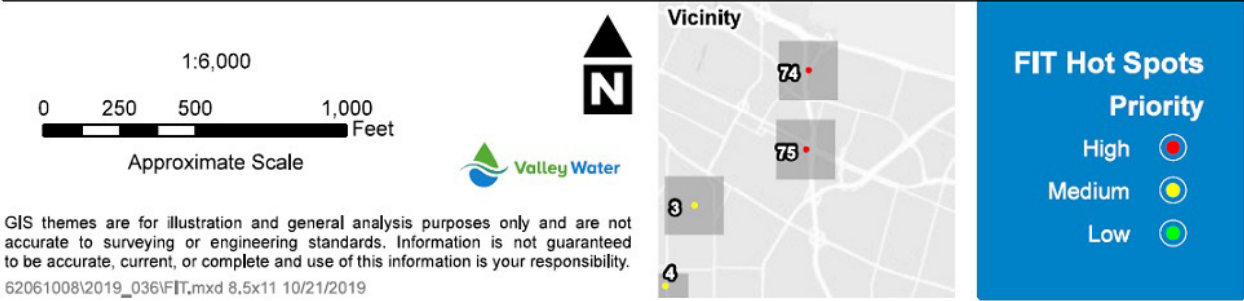
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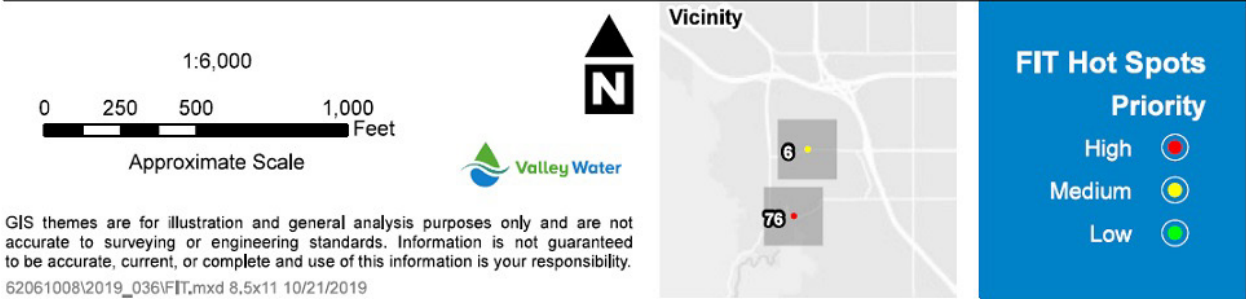
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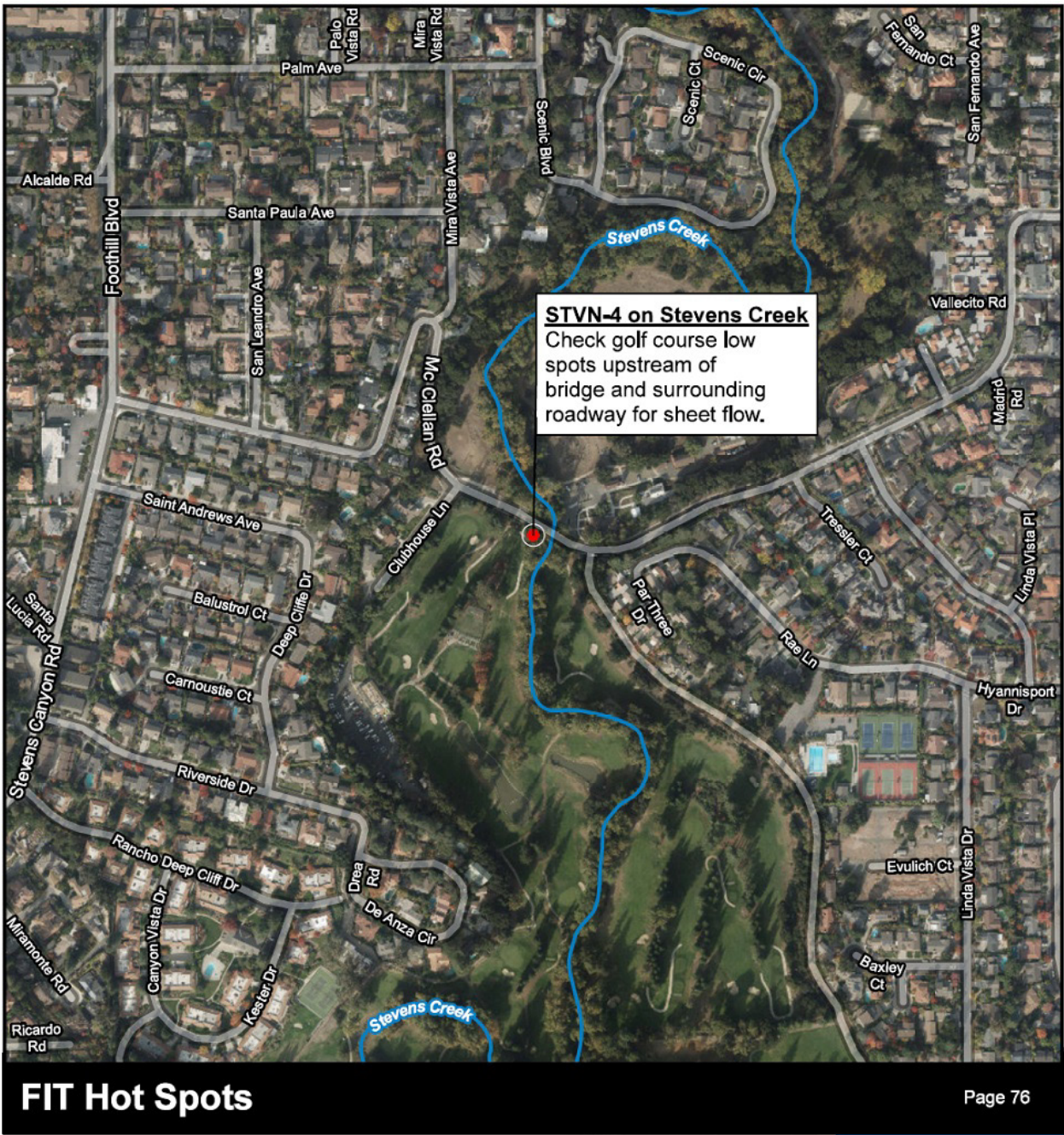
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Field Information Team Hot Spots (continued)



ATTACHMENT 14
Field Information Team Hot Spots (continued)



ATTACHMENT 14
Field Information Team Hot Spots (continued)



APPENDIX A

Permanente & Hale Creeks

A. PURPOSE

This Appendix to the Emergency Action Plan for Severe Storms and Flooding in Lower Peninsula Watershed (EAP) is meant to provide additional guidance specific to Permanente and Hale Creeks. It will not duplicate information already in an Emergency Operations Plan or the EAP, but will provide specific information and guidance for Permanente and Hale Creeks.

B. PERMANENTE CREEK & HALE CREEK DESCRIPTION

Permanente Creek Watershed is about 17.5 square miles of which Hale Creek is approximately 4 square miles. A significant amount of the runoff in this watershed is diverted to Stevens Creek through the Permanente Diversion to reduce downstream flows that could cause flooding in lower Permanente Creek.

The watershed lies within the northwest portion of Santa Clara County and is in Valley Water's Lower Peninsula Watershed. The upper watershed south and west of Interstate 280 is in unincorporated Santa Clara County and the Town of Los Altos Hills and drains the foothills of the Santa Cruz Mountains. This upper watershed area is largely open space, but also includes some low density residential, a cement quarry (Lehigh Cement Plant), and a cemetery (Gate of Heaven Catholic Cemetery). The creeks in the upper watershed area are generally unmodified with very little Valley Water right of way except for two flood detention basins located in Rancho San Antonio County Park and a small reach of Permanente Creek just upstream of Interstate 280.

The lower portions of the watershed primarily include residential and commercial land uses in the cities of Mountain View and Los Altos. Other land uses in the lower watershed are several schools, major roadways, and a large hospital (41-acre campus of El Camino Hospital). The creeks in the lower watershed area are more heavily modified, which includes sections of concrete channel, culverts, floodwalls and diversions structures. [Figure 1A](#) is a map showing the watershed and the FEMA flood area.

Permanente Creek forms in the upper watershed area at the confluence of North Branch (Ohlone Creek) and South Branch Permanente Creeks. The major tributary to Permanente Creek is Hale Creek, which flows into Permanente Creek in the lower watershed area about 2500 feet upstream of El Camino Real. Tributaries to Hale Creek include Magdalena Creek, Loyola Creek and Summerhill Channel. The majority of the flows from the upper Permanente Creek watershed area are diverted to Stevens Creek through the Permanente Diversion Channel located about 1.6 miles upstream of the Hale Creek confluence. [Figure 2A](#) is a Reach Map followed by a description of each reach.

APPENDIX A
Permanente & Hale Creeks (continued)

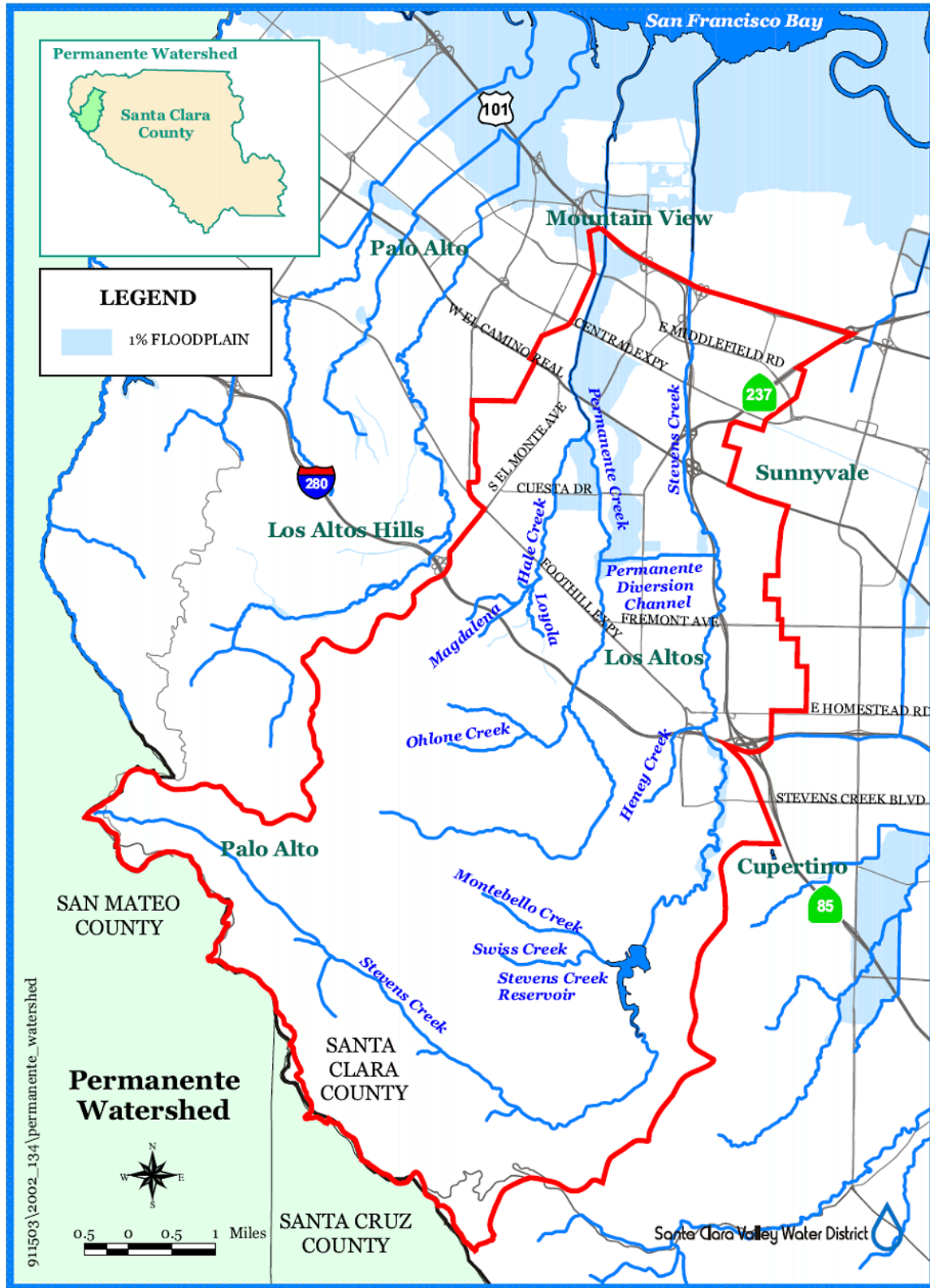


FIGURE 1A
Permanente Creek Watershed and FEMA Floodplain

APPENDIX A
Permanente & Hale Creeks (continued)

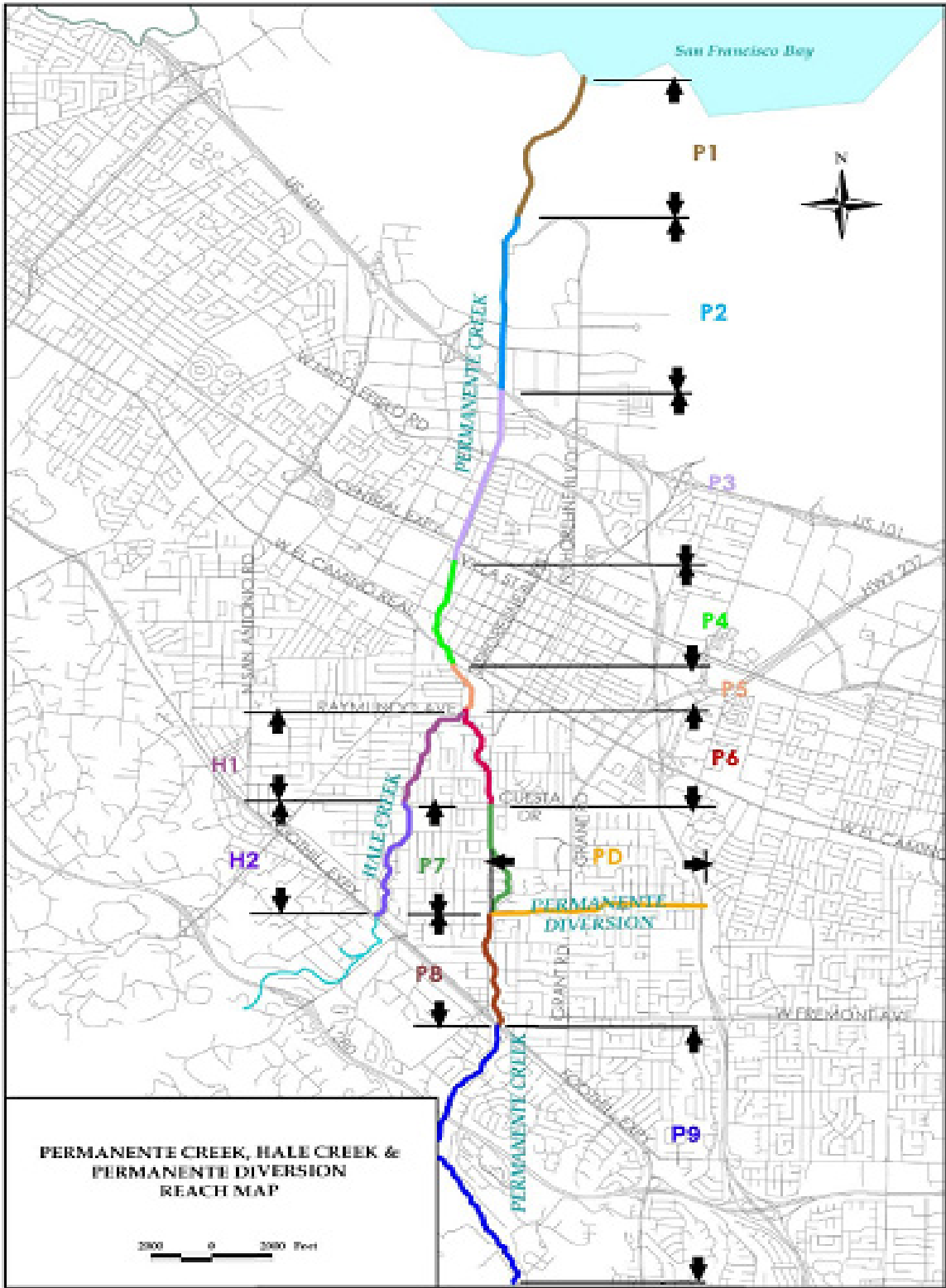


FIGURE 2A
Permanente Creek & Hale Creek Reach Map

APPENDIX A
Permanente & Hale Creeks (continued)



Reach P1: San Francisco Bay to Boat Pond Bridge (near Shoreline Blvd) – This reach in the City of Mountain View is an excavated earth levee channel that is in the tidal influence area of San Francisco Bay. There is a Shoreline Lake Park bike path on the west side in the upper area of this reach that connects to the Bay Trail and many trails in the baylands area. The lower portions of this reach have salt pond levees along both banks. Valley Water owns easement for the most of this reach, but access into the channel is difficult and the pedestrian/maintenance roads ends at the salt ponds.



Reach P2: Boat Pond Bridge (near Shoreline Blvd) to Highway 101 – The channel reach is in the City of Mountain View and is excavated earth with levees and floodwalls between Charleston Road and Highway 101. There is a pedestrian and maintenance path adjacent to the channel throughout this reach. Adjacent land uses are open space (park and golf course) downstream of Amphitheatre Parkway and industrial upstream. Roadway crossings include Shoreline Blvd., Amphitheatre Parkway, Charleston Road and Highway 101. Valley Water owns fee title right of way throughout this reach except at Charleston Road.

APPENDIX A

Permanente & Hale Creeks (continued)



Reach P3: Highway 101 to Villa Street – This reach of Permanente Creek in the City of Mountain View is primarily concrete u-Frame (vertical sidewalls) channel with a section of enclosed concrete culvert from Central Expressway to Villa Street. Major road crossings include Old Middlefield Road, Middlefield Road, and Central Expressway. An adjacent pedestrian path connecting to the Baylands trail system ends at Middlefield Road. Valley Water owns fee-title right of way from Highway 101 to Rock Street and easement over the remainder of the reach except at the road crossings. There is a maintenance ramp into the channel on the downstream side of Rock Street, San Luis Avenue, Hackett Avenue, and Villa Street. Adjacent land uses are Crittenden Middle School just upstream of Rock Street, Calvary Chapel near Central Expressway, commercial on Old Middlefield Road, and the remainder is residential. Hetch-Hetchy pipelines cross the creek just downstream of Central Expressway and there is a 1.8-foot drop structure just downstream of the crossing.



Reach P4: Villa Street to El Camino Real – The reach consists of two underground culverts separated by a 180-foot reach of trapezoidal concrete channel. One culvert starts at Villa Street and extends about 890 feet upstream to a point about 180 feet downstream of California Street. The second culvert starts at California street and ends about 190 feet upstream of El Camino Real. There is a maintenance ramp downstream of Villa Street and 2 drop structures in this reach; downstream of the El Camino Culvert and under Latham Street in the culvert. Valley Water has easement along this reach except under the roadways.

APPENDIX A
Permanente & Hale Creeks (continued)



Permanente Creek downstream of Mountain View Ave



**Upstream Mountain View Ave diversion weir
pump pipes**



McKelvey Park diversion/detention pump pipes

Reach P5: El Camino Real to Confluence with Hale Creek – This reach is primarily u-frame concrete channel about 12' wide by between 7' to 10' high. There is a maintenance ramp at the downstream side of Mountain View Avenue. There are 2 sloped drops in the reach; one at the upstream end of the El Camino Real culvert and the other just upstream of Park Avenue. The McKelvey Park detention basin is just upstream of the Mountain View Avenue with the overflow weir diversion feature allowing waters to be stored in the baseball field and parking areas during high flows. Water stored in the detention area is then pumped back into Permanente Creek by Valley Water through pipes over the weir after the peak flows have passed.

APPENDIX A
Permanente & Hale Creeks (continued)



Reach P6: Confluence with Hale Creek to Miramonte/Cuesta Culvert – The channel is small and generally vegetated earth section through this reach with some banks being protected against erosion with shotcrete, sack concrete and other materials. Vegetation varies from mature trees and grasses to bare earth. Valley Water has easement and fee-title property rights throughout this reach. However, except for maintenance gates at Barbara Avenue, Marilyn Drive and Hale Creek confluence, there is very little maintenance access in this reach.

Reach P7: Miramonte/Cuesta Culvert to Permanente Diversion – This section is mainly a vegetated earthen channel with steep banks. Vegetation is mostly mature trees with little undergrowth. There are no maintenance ramps in the reach, however, there is a maintenance gate at Covington Bridge. There is a vertical drop just downstream of an abandoned bridge upstream of the Saint Francis High School entrance bridge. Valley Water owns easement or fee-title through most of this reach.



APPENDIX A
Permanente & Hale Creeks (continued)



Permanente Creek in Heritage Oaks Park



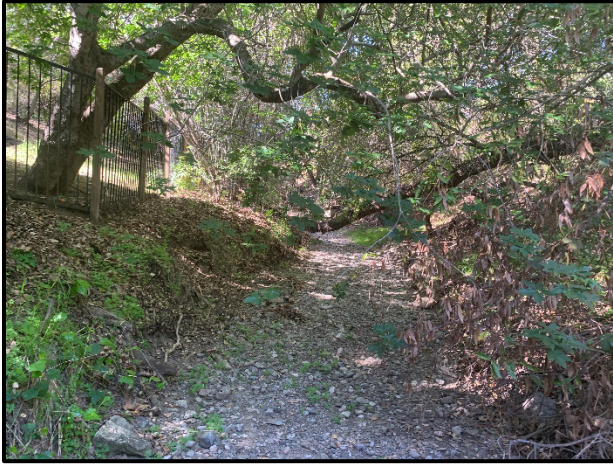
Permanente Creek Diversion



Berry Ave Gauge downstream of Portland Ave

Reach P8: Permanente Diversion to Foothill Expressway – This reach is concrete trapezoidal which is basically a continuation of the Permanente Diversion Channel. A small amount of flow is diverted into the Permanente Creek channel while the majority of flows continue to Stevens Creek. The trapezoidal concrete section continues upstream about 1,000 feet to Portland Avenue crossing. In that concrete section there are two maintenance ramps, a stream gauge station and weir and two drop structures. The channel is vegetated earth channel from Portland Avenue to Foothill Expressway with occasional bank erosion protection features. Valley Water has easement or fee-title property rights through this reach except at Portland Avenue, Fremont Avenue and through Heritage Oaks Park.

APPENDIX A
Permanente & Hale Creeks (continued)



Upstream of Foothill Expressway



North Permanente Creek Detention Basin



Diversion structure in San Antonio Park



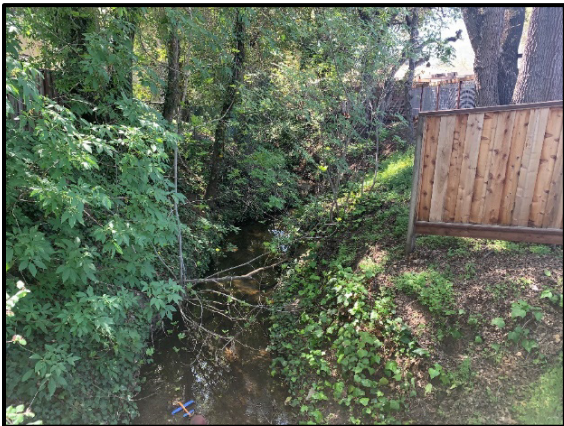
South Permanente Creek Detention Basin

Reach P9: Foothill Expressway to upstream of San Antonio Park – This reach of Permanente Creek is a natural earthen channel with mature vegetation and undergrowth. Land use is residential between Foothill Expressway and Interstate 280 and primarily open space upstream of Interstate 280. The major landowners upstream of Interstate 280 are the County of Santa Clara's 165-acre Rancho San Antonio Park (operated by Mid-Peninsula Open Space District) and the 300-acre Lehigh Hanson Quarry and Cement Plant. Valley Water owns easement or fee-title on about 70% of the creek between Foothill Expressway and I-280 and a small amount of easement just upstream of I-280. There are 2 detention basins located in Rancho San Antonio Park. The north basin stores 91 acre-feet and the south basin store 9 acre-feet of peak volume. A diversion structure is located at the Gate of Heaven Cemetery maintenance bridge. Discharge from both basins is through gravity flow in outlet pipes back to the creek.

APPENDIX A Permanente & Hale Creeks (continued)



Reach H1: Confluence with Permanente Creek to Rose/Rosita Culvert – This reach varies from straight to somewhat meandering trapezoidal and u-frame concrete channel. All bridge crossings are clear span, without piers that could potentially catch debris. Valley Water owns easement or fee-title throughout this reach except at the road crossings. Maintenance access is generally limited to road crossings.



Reach H2: Rose/Rosita Culvert to Foothill Expressway – This reach varies from straight to somewhat meandering vegetated trapezoidal channel with large mature trees on the banks and varying amounts of undergrowth. Valley Water owns very little right of way in the reach.



Reach PD: Confluence with Stevens Creek to Permanente Creek

APPENDIX A

Permanente & Hale Creeks (continued)

C. PERMANENTE FLOOD DESCRIPTION & POTENTIAL FAILURE SCENARIOS

The Permanente Creek watershed has a semi-arid Mediterranean climate characterized by mild, wet winters, and warm, dry summers. The distribution of rainfall is strongly affected by topography. Rainfall levels are highest in the upper watershed area in the Santa Cruz Mountains and lowest by San Francisco Bay. Average annual rainfall ranges up to 91 centimeters (36 inches) per year in the highest sections of the hills, while the average annual rainfall near the Bay is 33 centimeters (13 inches). Over 80 percent of the seasonal precipitation occurs between November and March.

The steep topography of the upper watershed results in short duration, high-intensity runoff during major storms. Runoff in the lower, urbanized section of the creeks is conveyed to the creeks by the municipal storm drain system. This tends to result in a flashy system with increased magnitudes and more frequent events, but it also tends to partially reduce the magnitude of very large events.

Permanente and Hale Creeks have had a history of flooding in the lower watershed areas. To protect the area from flooding, flood protection improvements were constructed starting in the mid-1950s up until the most recent improvements completed in 2020. Recent improvements include:

1. Flood detention basins in Rancho San Antonio Park provide storage of up to 100 acre-feet of flood waters (9 acre-feet in a South Basin and 91 acre-feet in a North Basin). The basins result in discharge being reduced about 650 cubic feet per second (cfs) from 1,350 cfs to about 790 cfs during a 100-year event (1% event)
2. Permanente Diversion Structure (7 foot wide by 1 foot high) high flow weir at the top of the wide wall limits the flow down the Permanente Creek to about 100 cfs during a 100-year event. The structure includes a gate that will allow low flows at the bottom of the channel to be allowed down Permanente Creek, but during high flows this can be clogged by sediment and is not assumed to be.
3. Permanente Diversion carries the remaining 100-year flow of about 1,800 cfs to Stevens Creek. This exceeds the capacity of the channel by about 115 cfs (less than the previous spill of about 360 cfs). This will result in some floodwaters to the north through Blach Intermediate School.
4. McKelvey Park flood basin was constructed in 2020 and is a multi-purpose use area. The site consists of sports fields with an overflow weir allowing high water in the creek to spill into the facility. The facility is drained by Valley Water using pumps after flooding. The basin will store about 50 acre-feet of flood water during a 100-year event and could drain utilizing the installed pumps within about 50 hours after overflow occurs.
5. Floodwalls of up to 4 feet in height constructed north of Highway 101 provide adequate freeboard for the 100-year event.

APPENDIX A

Permanente & Hale Creeks (continued)

While these improvements have significantly reduced the potential of flood hazards, there are still reaches subject to flooding in the 100-year event and unexpected failures can occur. Three primary 100-year flood threats existing are:

1. Hale Creek Flooding
2. Permanente Diversion Flooding
3. Failure Scenarios – Levee/Floodwalls north of Hwy 101 and Rancho San Antonio Detention Basin

This recurrent flooding and flood potential along Permanente and Hale Creeks presents a long-term hazard to public health and safety, property values, and economic stability in the Cities of Los Altos and Mountain View. Hydraulic models of Permanente and Hale Creeks have shown that more than 3,000 parcels would likely still be subject to some level of flooding in a 100-year event or in a failure scenario.

Additionally, local drainage issues and other unforeseen events can pose a flood hazard. [Attachment 1](#) describes some unforeseen events and [Attachment 2](#) discusses possible remedial actions that may be taken for those events. Two possible failures have been modeled and mapped.

Failure Scenarios

1. The embankment between Rancho San Antonio detention basin and Permanente Creek breaches, which renders the basin non-functional. [Figure 3A](#) shows the resulting flooding area in this scenario with the Berry Avenue gauge reaching 9.5'.
2. Levees and/or floodwalls downstream of Highway (Hwy) 101 fail allowing floodwaters to flow overland. Three scenarios were modeled for this type of failure. [Figure 4A](#) is a map showing three levee/floodwall reaches – left (west) bank between Hwy 101 and Charleston Road, right (east) bank between Hwy 101 and Charleston Road, and Left (west) bank just downstream of Amphitheatre Parkway. And [Figures 5A, 6A and 7A](#) show the flooding resulting from each individual failure.

APPENDIX A **Permanente & Hale Creeks (continued)**

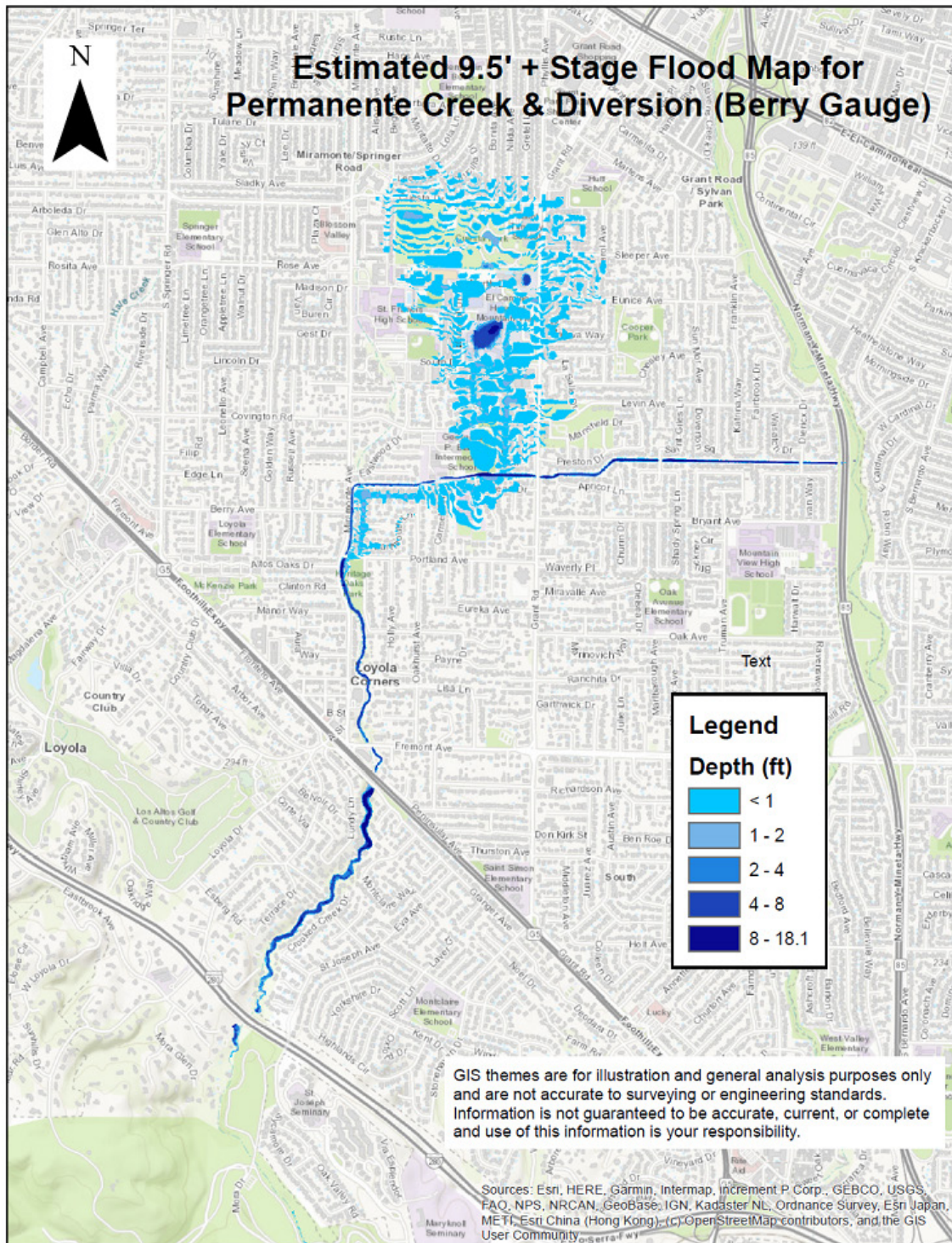


FIGURE 3A
Permanente Diversion Flooding for
Rancho San Antonio Basin Failure 9.5' at Berry Avenue

APPENDIX A **Permanente & Hale Creeks (continued)**

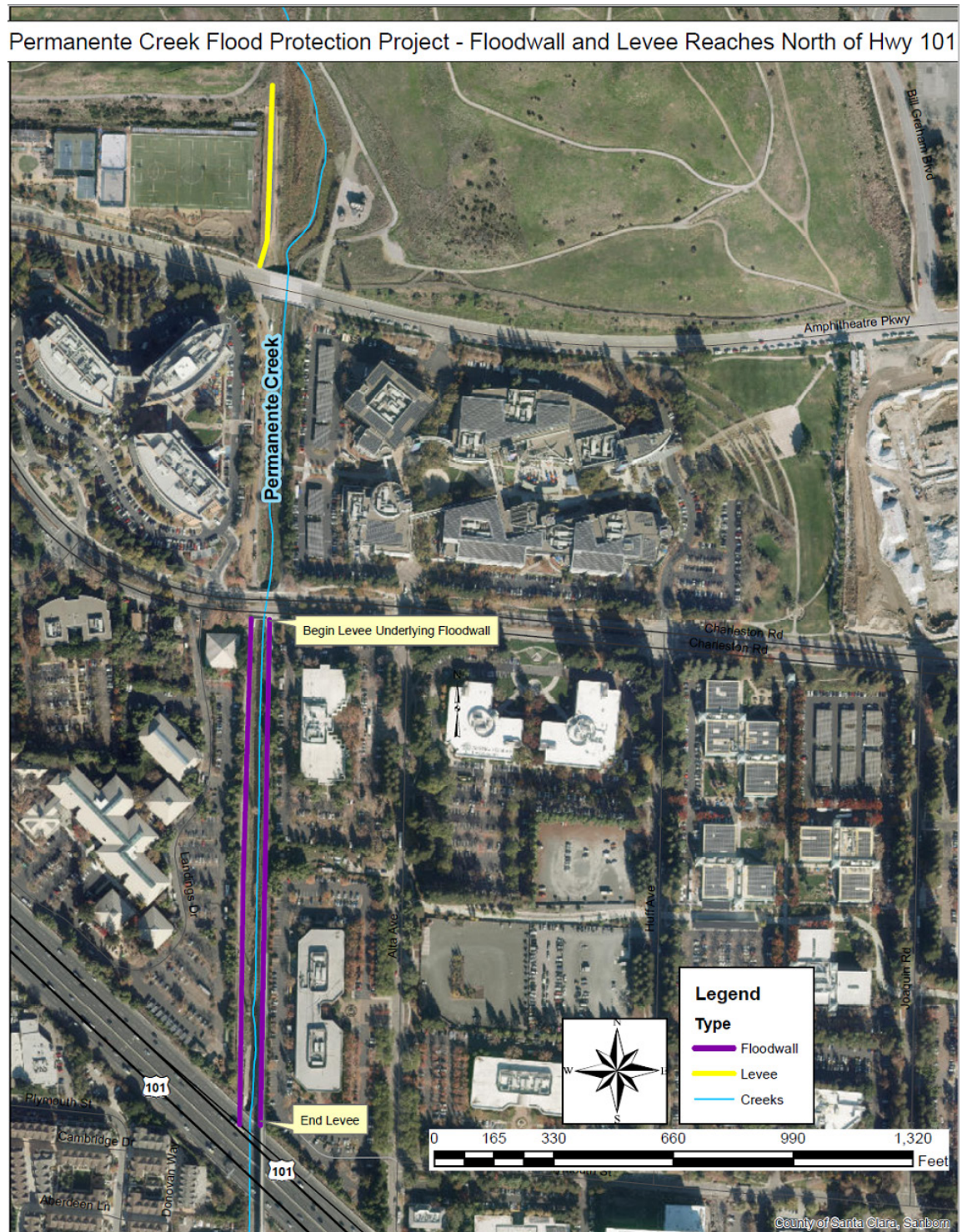


FIGURE 4A
Permanente Creek Levee/Floodwalls Downstream of Highway 101

APPENDIX A **Permanente & Hale Creeks (continued)**

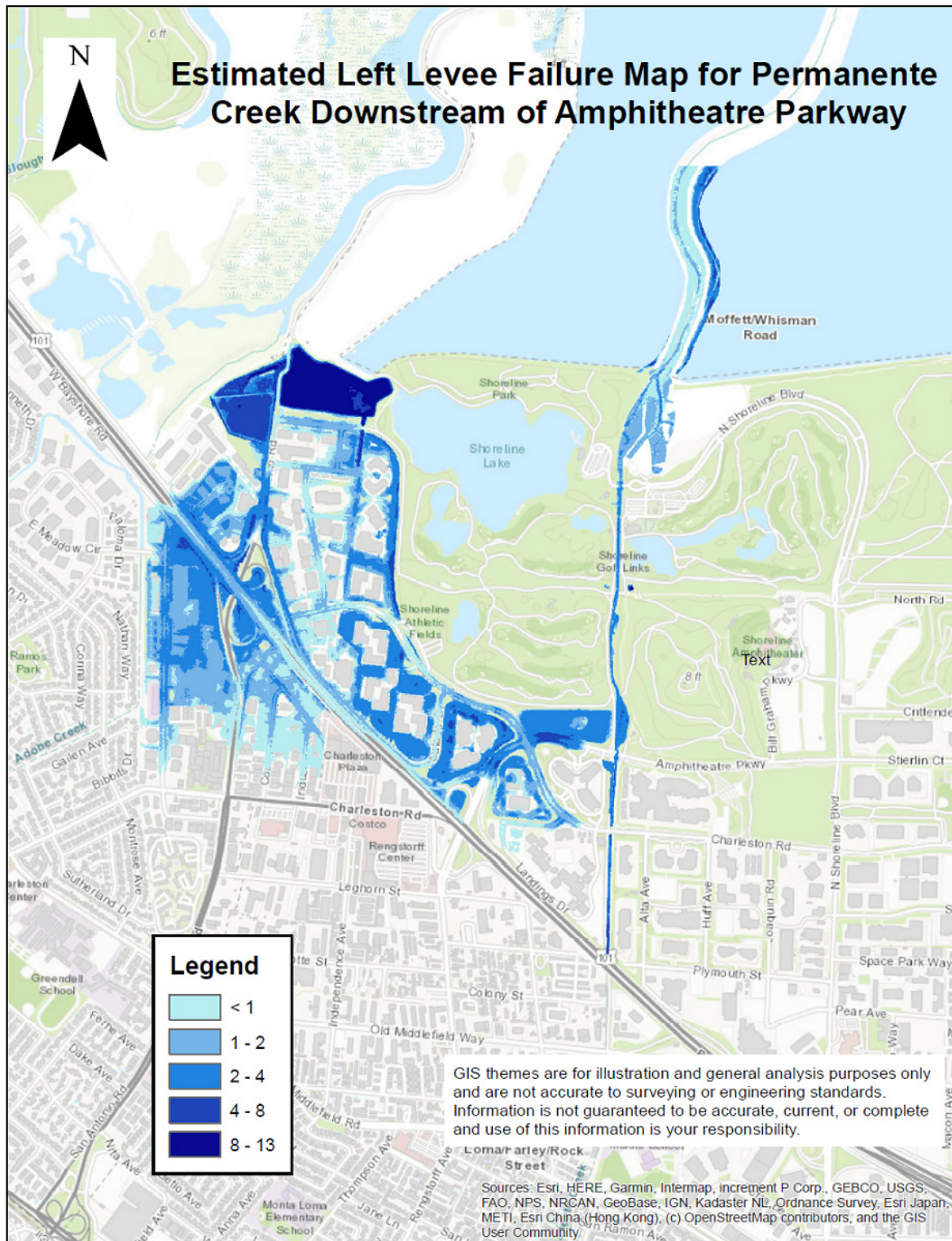


FIGURE 5A
Permanente Creek Left Bank Levee/Floodwall Failure

APPENDIX A **Permanente & Hale Creeks (continued)**

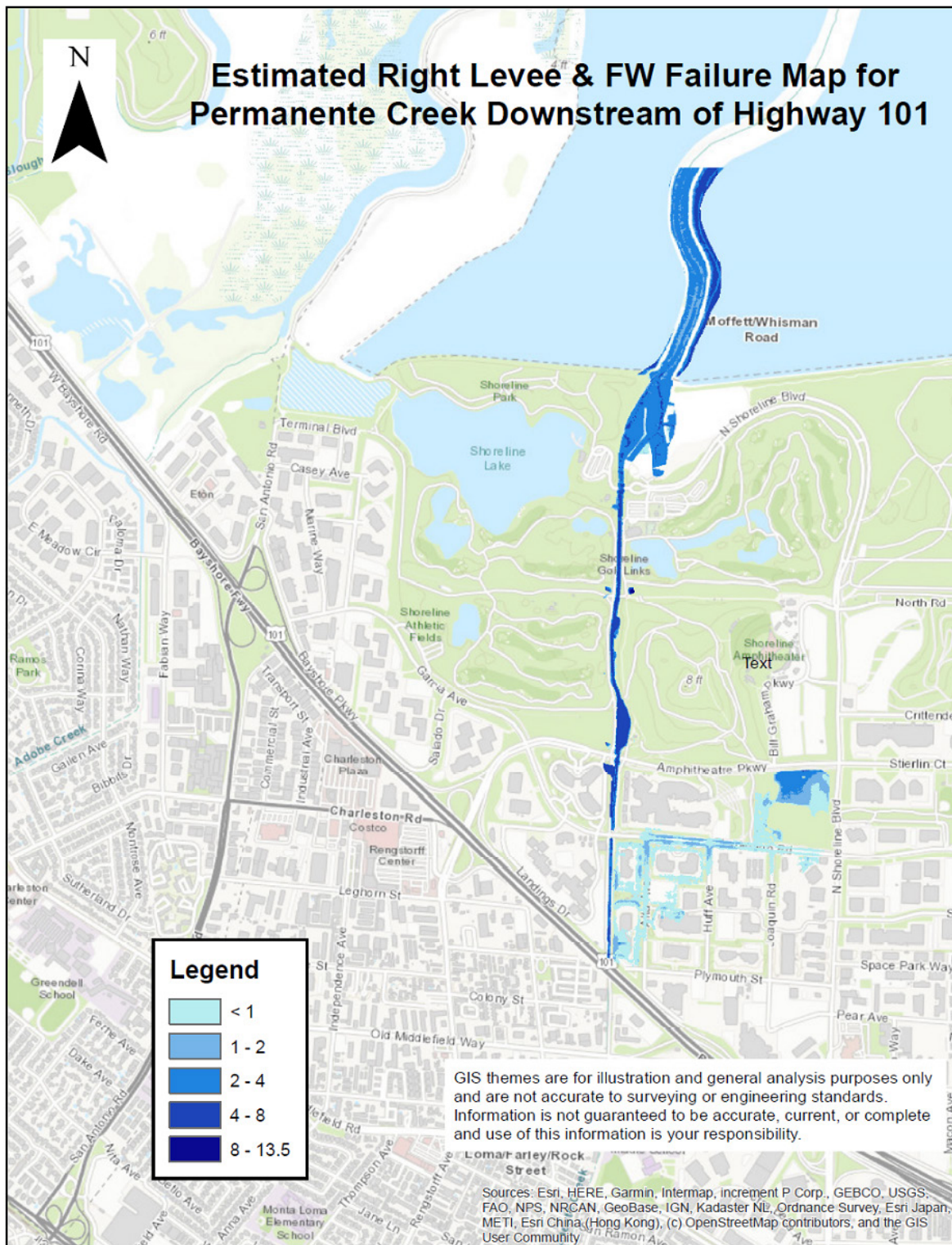


FIGURE 6A
Permanente Creek Right Bank/Levee Failure

APPENDIX A **Permanente & Hale Creeks (continued)**

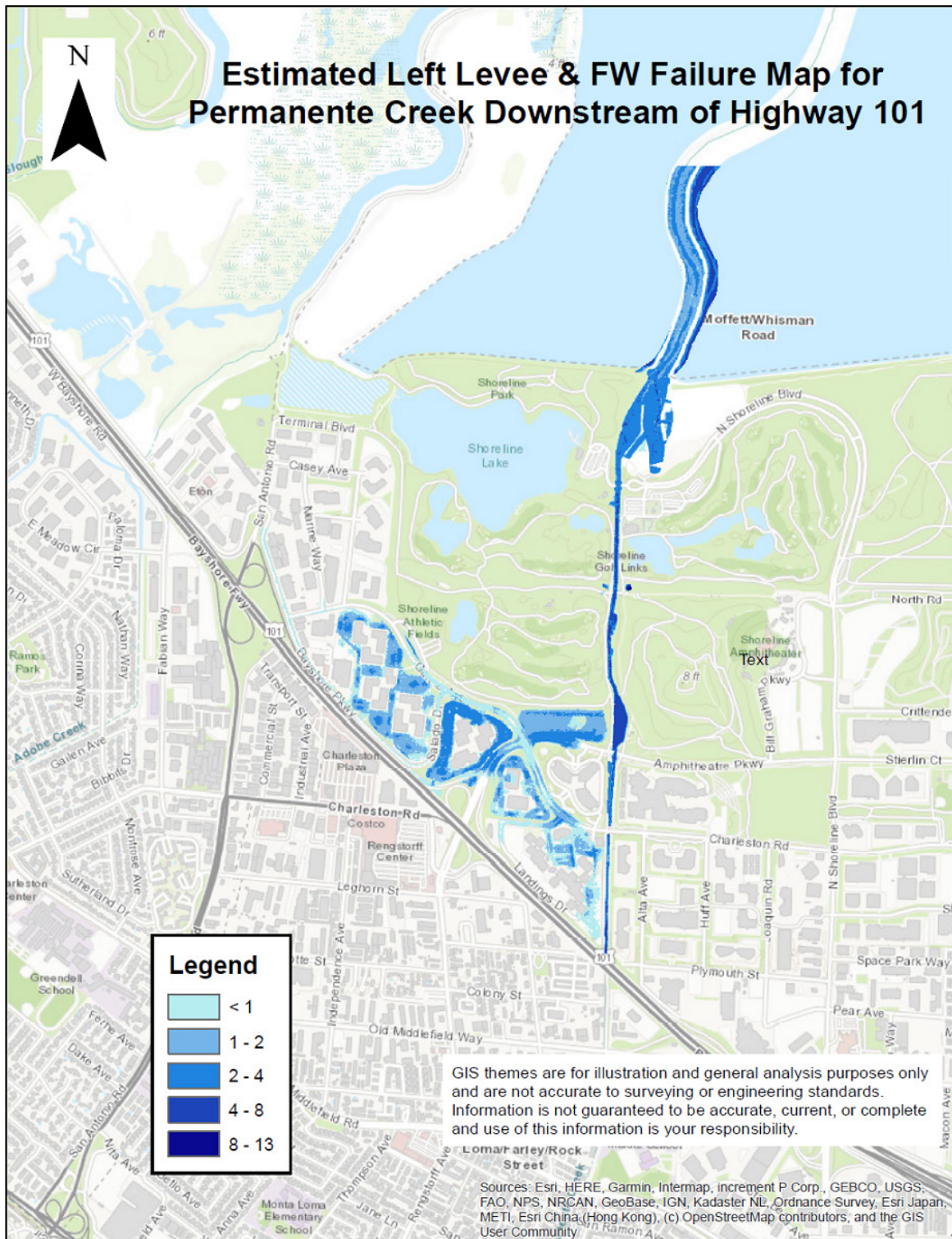


FIGURE 7A
Permanente Creek Left Bank Downstream of Amphitheatre Parkway Failure

APPENDIX A

Permanente & Hale Creeks (continued)

D. FLOOD EVENT DETECTION

Several detection methods can be utilized for Permanente and Hale Creeks including weather forecasts, hydrologic/hydraulic modeling, Automated Local Evaluation in Real Time (ALERT), other stream/precipitation gauge systems, and field observations. Some of these are available through websites listed in [Attachment 13](#).

1. Weather Forecasts

The National Weather Service (NWS) provides weather (e.g., precipitation) forecasts in advance of a storm events. Valley Water also contracts with a service provider for enhanced forecasting in the regional area.

During storm events, the NWS will host webinars with affected agencies and utilities to discuss forecasts and share information to enhance regional preparedness. The Valley Water and Agency Stakeholders can participate in these webinars and share all current information. In addition, the NWS maintains websites ([Attachment 13](#)) that provide flood threat information and they will issue public notices of forecasted flood threats on local television and radio programming if the level of threat is high.

2. Hydrologic/Hydraulic Modeling

Based on the weather forecast and other real-time data, Valley Water may utilize computer modeling of Permanente Creek to predict flood stage up to 72 hours in advance. These models are not run operationally and performed on an ad hoc basis. Outputs are considered estimates and can vary, sometimes significantly, from the actual flood flows.

To improve the accuracy of the modeling, Valley Water will review the computer model periodically and determine if additional information can be gathered to update the model. The type of information that can be used to update the models include: surveys of channel geometry, reevaluation of channel roughness due to vegetation or blockages, and data gathered during high flow events.

Valley Water and NWS will utilize this modeling to help set their flood condition level for Permanente ([Table 1A](#)) and provide the information to local agencies and the public as appropriate. And this same modeling and information that helps determine flood threat levels is used by Valley Water in determining flood severity levels for Permanente Creek ([Table 2A](#)) during storm events.

3. Gauge System

Stream gauges provide valuable information for high flow events and may give notice to take action or to deploy staff for field observations. Gauges may be both visual and remote sensing Automated Local Evaluation in Real Time (ALERT). ALERT gauges are set with alarms to automatically notify appropriate staff at stages as described in [Table 3A](#).

APPENDIX A

Permanente & Hale Creeks (continued)

All ALERT gauges can be found at <https://alert.valleywater.org/?p=map>. These gauges provide data in near real-time.

4. Field Information Teams and Field Operations & Maintenance

As water levels increase in the creeks, rivers, and waterways, Valley Water Field Information Teams (FITs) are deployed to visually monitor and report back to a DOC or EOC the water levels in areas of potential flooding. In addition, FITs can monitor facilities for potential damage, identify surface drainage issues, thoroughly document actual flooding, and report landslides/erosion affecting the adjacent land uses.

Valley Water and, in some cases other Stakeholders, have individual teams who deploy into the field to observe flood conditions at “hot spots.” Deployment of these teams may be coordinated if there are more than one team in the same area. HH&G maintains a master list of flooding hotspots and monitoring locations ([Attachment 14](#)) to deploy FITs and other teams in the Lower Peninsula Watershed that includes Permanente Creek and Hale Creek at:

- **Permanente Creek at Portland Avenue Culvert to Permanente Diversion** – check for high flows and blockages at culvert and check for proper functioning of diversion ([Attachment 14](#), page 72),
- **Permanente Diversion at Blach School** – Check for depth of flow.
- **Hale Creek at Mountain View Avenue** – check for high flows and bridge for debris and, if possible, check on McKelvey Park diversion north on Mountain View Avenue ([Attachment 14](#), page 73), and
- **Hale Creek at Arboleda Drive, Rosita Avenue, and Covington Road** – check bridges for debris and high flows ([Attachment 14](#), page 74).

Field Operations & Maintenance personnel are also typically out in the field inspecting, repairing, and removing debris from facilities during storm events. These personnel also provide intelligence back to their agencies regarding facility conditions and any storm related concerns.

In addition, the public may be helpful in reporting situations that may pose a flood threat. These are typically reported to Valley Water, City Stakeholders or other Agency Stakeholders who should promptly relay to the DOC/EOC or to Valley Water through a contact method shown below:

- Main Valley Water telephone – (408) 265-2600
- After hours telephone – (408) 395-9309
- Valley Water website report problems – <https://access.valleywater.org/s/> or <https://access.valleywater.org/s/>.

APPENDIX A

Permanente & Hale Creeks (continued)

- Non-Emergency Police & Fire dispatch – 311
- Emergency Police & Fire dispatch – 911

All together the intent of these observations is to cover the following:

- a. Visual stream gauges – check for high water and rate of change
- b. Known Flood Hot-Spots
- c. Real-time Flooding – report and document flooding
- d. Bridge Piers – check for debris blockages
- e. Trash Racks – check for debris blockages
- f. Levees and Floodwalls – check for damage and stability
- g. Sandbag sites – check for supply and access issues
- h. Previously repaired or other project sites – check for performance
- i. Bank Stability – check for threats to adjacent land uses

E. PERMANENTE AND HALE FLOOD CONDITION LEVELS AND SEVERITY DETERMINATION

Sometimes an event is a flash flood that occurs suddenly without much early notice, which is likely to occur in small watersheds that are controlled by storm drain runoff. However, with weather forecasting and modeling there is often an ability to estimate flood events before they occur. This is extremely valuable when preparing for necessary evacuations and road closures.

To provide this advanced notice, a threat level should be used to provide an indicator of preparedness for a response and a level of potential severity for areas subject to flooding to assist the Agency's in planning and implementing appropriate actions. Modeling in the future is filled with uncertainties, therefore, a condition of Watch will be used when flood stage is estimated about 24 to 72 hours or more in the future. If flooding is estimated within about 24 hours, the threat level will be elevated to Warning.

APPENDIX A
Permanente & Hale Creeks (continued)

TABLE 1A
Flood Condition Levels

Preparedness (Green)	<p>This is the base stage of readiness that will be the typical condition throughout most of the year. It is defined as:</p> <ul style="list-style-type: none"> Flood stage (Minor Flooding or greater) or 90% to 100% of Design Flow stage is not estimated within the next 72 hours; or Measured stream depth is below 50% of flood or 70% of Design Flow stage.
Monitoring (Yellow)	<p>This condition is variable and requires more intense monitoring and a heightened level of alertness. Minimal staff in the Emergency Operations Center (EOC) or in Watersheds Departmental Operations Center (DOC) may be activated. An informal EOC/DOC Action Plan (AP) could be initiated. This condition is defined as:</p> <ul style="list-style-type: none"> Stream depth is estimated to reach flood or 90%-100% of Design Flow stage in 72 hours or more; or Measured stream depth is at 50% to 70% of flood or 70% to 90% of Design Flow stage; or For areas that are controlled purely by storm drain runoff (flashy systems), the stream depth is estimated to reach flood or near Design Flow stage within 24 hours.
Watch (Orange)	<p>The EOC/DOC may be opened if not already operating. A formal EOC/DOC AP may be drafted if they are active. This condition would be set if:</p> <ul style="list-style-type: none"> Stream depth is estimated to reach flood or greater than Design Flow stage within 24 to 72 hours; or Measured stream depths are at 70% to 100% of flood stage; or Measured stream depths are at 90% to 100% of Design Flow stage; or For areas that are controlled purely by storm drain runoff (flashy systems), the stream depth is estimated to reach flood or greater than Design Flow stage within 6-12 hours.
Warning (Red)	<p>The EOC will typically have been activated and would be closely monitoring the situation, providing notifications and responding according to a written AP. Often for smaller watersheds with flashy creeks, an EOC may not be opened until the storm event is occurring.</p> <ul style="list-style-type: none"> Flood stage or greater than Design Flow stage is occurring or is estimated to occur within 24 hours; or Measured stream depths are 100% or greater than flood stage; or Measured stream depths are greater than Design Flow stage; or For areas that are controlled purely by storm drain runoff (flashy systems), the stream depth is estimated to reach flood or greater than Design Flow stage within minutes/hours or is occurring.

When the threat level is at a Watch or Warning, there is an expectation that flooding will occur or is occurring at some locations. The severity of the situation at specific locations is determined by the flood stage. The areas subject to flooding for different stream stages are estimated utilizing hydraulic models and flood maps prepared by the Hydrology, Hydraulics and Geomorphology Unit (HH&G).

APPENDIX A Permanente & Hale Creeks (continued)

Flood severity categories are defined by Valley Water and the NWS as:

**TABLE 2A
 Permanente Creek and Hale Creek Flood Severity Levels**

Action (Yellow)	<p>An established gauge height which when reached by a rising stream, lake, or reservoir represents the level where action is taken in preparation for possible significant hydrologic activity.</p> <ul style="list-style-type: none"> • Permanente Creek <ul style="list-style-type: none"> ○ The Berry Avenue stream gauge is near or expected to be near 6.5' – Watch water level near Blach School. ○ Rancho San Antonio is near or expected to be near 7.0' – Flood watch stage. • Hale Creek – 5.5' at Magdalena Avenue begins the flood watch stage.
Minor Flooding (Orange)	<p>Minimal or no property damage, but possibly some public threat (e.g., inundation of roads).</p> <ul style="list-style-type: none"> • Permanente Creek <ul style="list-style-type: none"> ○ The Berry Avenue stream gauge is near or expected to be near 7.5' – Blach School is at risk of flooding. High flows with heavy debris might cause localized blockages to cause overtopping of banks and floodwalls. ○ Rancho San Antonio is near or expected to be near 9.0' – The weir at Rancho San Antonio South Basin is at risk of spilling into the basin. • Hale Creek – Covington Road is likely a flood risk when the gauge is 6.5' at Magdalena Avenue.
Moderate Flooding (Red)	<p>Some inundation of structures and roads near stream, evacuations of people and/or transfer of property to higher elevations.</p> <ul style="list-style-type: none"> • Permanente Creek <ul style="list-style-type: none"> ○ Berry Avenue stream gauge is near or expected to be near 9' – Permanente Diversion Channel starts spilling, inundating Black School and a few properties to the south. ○ Rancho San Antonio is near or expected to be near 11.5' – The weir at Rancho San Antonio South Basin is overtopped and starts spilling into basins. • Hale Creek – Both banks upstream of Covington Road are spilling close to the road. Other areas are at risk of flooding when the gauge is 8.5' at Magdalena Avenue.
Major Flooding (Purple)	<p>Extensive inundation of structures and roads, significant evacuations of people and/or transfer of property to higher elevations.</p> <ul style="list-style-type: none"> • Permanente Creek <ul style="list-style-type: none"> ○ Berry Avenue stream gauge is near or expected to be near 9.5' - Flood pulse continues past Blach School and extends north to cover many residential and commercial properties, hospitals and parks. The flood devours a portion of St. Francis High School and extends beyond Grant Rd to the east to inundate additional parcels, but does not reach the Cooper Park area. The northerly flood wave also covers Cuesta Park, but does not travel past Cuesta Drive just north of it.




APPENDIX A

Permanente & Hale Creeks (continued)


<p>Major Flooding (Purple)</p>	<ul style="list-style-type: none"> ○ Berry Avenue stream gauge is near or expected to be near 9.5' - Basin failure at Rancho San Antonio causes more flows to reach this gauge from upstream, causing spills near Portland Avenue on the east bank that inundates residential parcels and Miramonte Schools in northeastern direction. The flood pulse north of Blach School as mentioned above further expands its intensity and footprint that covers areas slightly north of Cuesta Drive. This scenario is mapped in Figure 5A. ○ Rancho San Antonio is near or expected to be near 10.0' – More flows overtopping the weir at Rancho San Antonio South Basin. ○ Rancho San Antonio is near or expected to be near 11.5' – Basin failure at Rancho San Antonio causes more flows to reach this gauge from upstream, causing spills near Portland Ave. on east bank that inundates residential parcels, Miramonte Schools in northeastern direction. The flood pulse north of Blach School covers a wide range of area including St Francis High School to the west, pockets of neighborhood north of Cuesta Dr. and east of Grant Rd, and many parks and hospital buildings. ● Hale Creek <ul style="list-style-type: none"> ○ Magdalena Avenue is near or expected to be at 9.5' – McKelvey flood basin weir starts spilling from Permanente Creek. The spill inundation footprint expands slightly at Covington Rd, but still confined to small areas close to the Road. No Spills at other locations yet with North Sunshine Dr. at risk of flooding. ○ Magdalena Avenue is near or expected to be at 11.0' – Spills at Covington increase significantly with flood pulse traveling in a northeast direction along Riverside Dr., then northerly direction along S Springer Rd, then eastward on Rose and ultimately reaching Cuesta Drive. North Sunshine Dr. spills followed by a spill at South Sunshine Dr. with parcels adjacent to creek inundated near Sunshine Ct, most flooding stays on east bank. ○ Magdalena Avenue is near or expected to be at 12.5' – The flooding described above intensifies in the depth and an expanded footprint along the same spilling locations. Additional spilling near Marylin Dr and Seventh Day Adventist footbridge forming flood wave that moves in northeast direction.
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APPENDIX A
Permanente & Hale Creeks (continued)

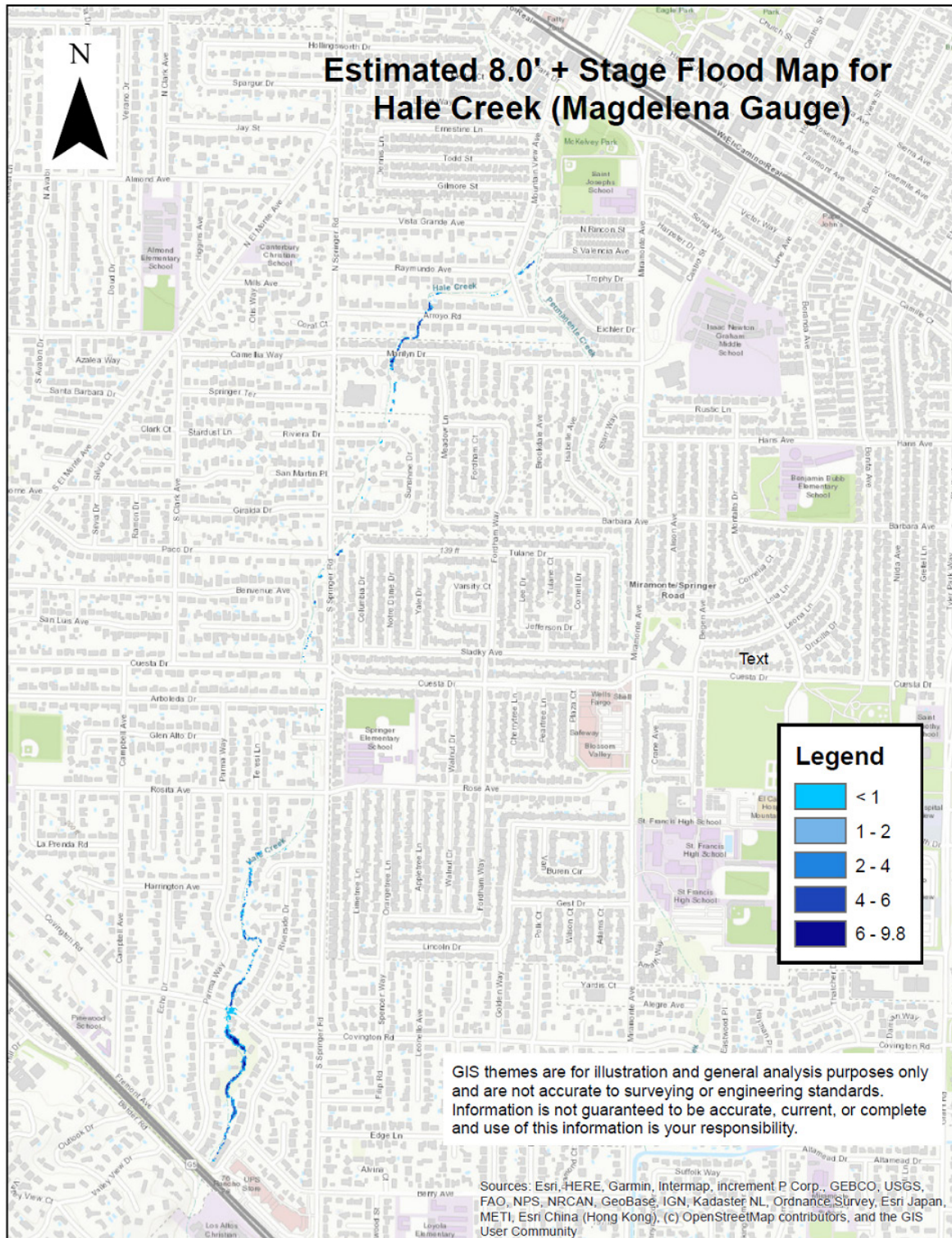
TABLE 3A
Permanente Creek & Hale Creek On-Site Monitoring Thresholds

ID #	MONITORING LOCATION	FLOODING DESCRIPTION	FLOOD THREAT STAGE AT MONITORING LOCATION			PHOTO
			50% Capacity	70% Capacity	100% Capacity	
1	Hale Creek at Magdalena Avenue	During flooding on Hale Creek, first spill occurs at Covington Road, followed by North and South Sunshine Drive with majority of flood wave staying and traveling on east bank.	4.5'-5.5'	5.5'-6.5'	8.0'-9.0'	
2	Hale Creek at Magdalena Avenue	Spilling into McKelvey Park Basin with weir overtopped	6.0'-7.0'	7.5'-8.5'	9.0'-10.0'	
3	Permanente Creek at Barry Avenue	Spilling occurs near Blach School from Permanente Diversion Channel, flooding nearby school, hospital, homes, and streets north of Blach School.	6.5'-7.5'	7.5'-8.5'	8.5'-9.5'	

APPENDIX A
Permanente & Hale Creeks (continued)

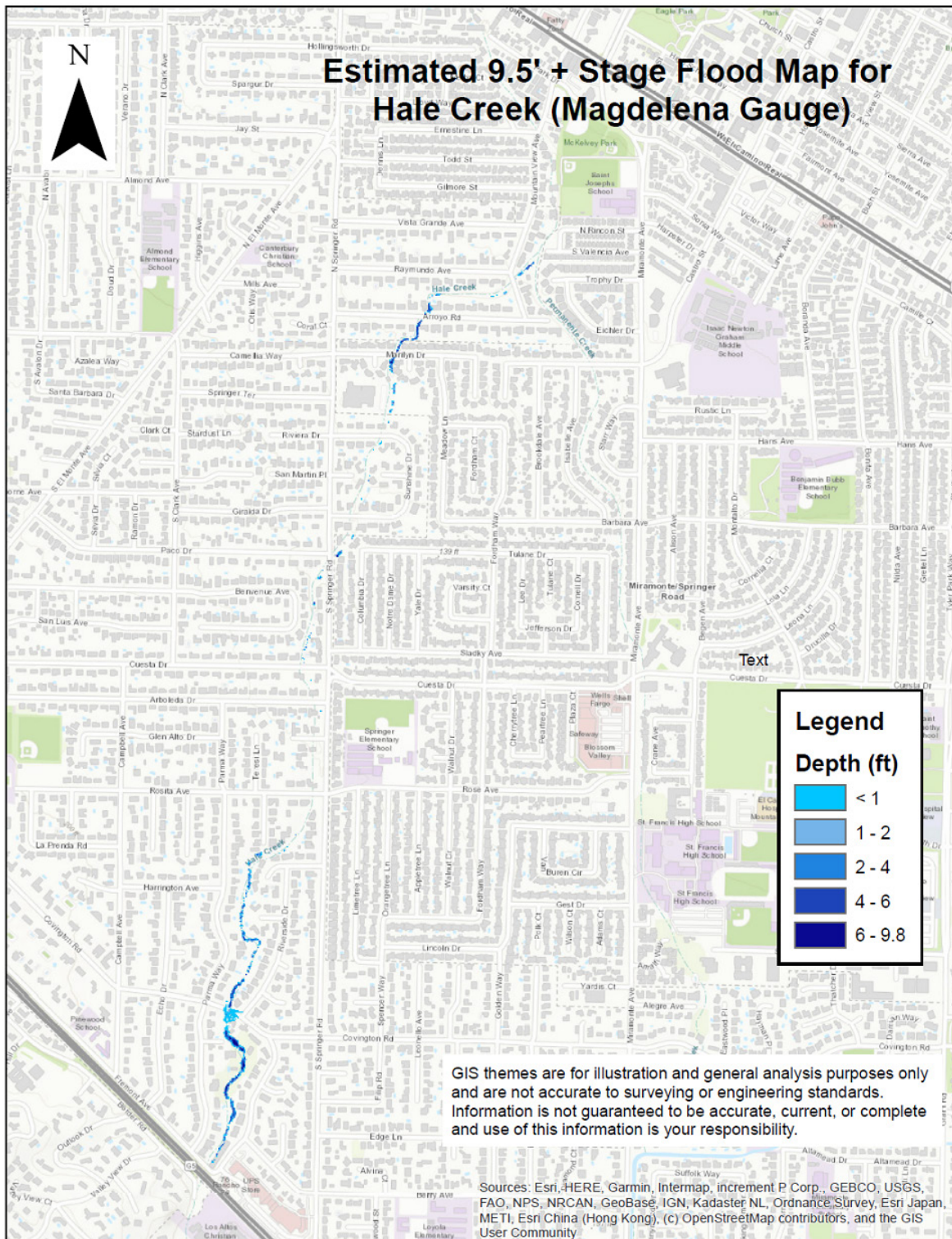
ID #	MONITORING LOCATION	FLOODING DESCRIPTION	FLOOD THREAT STAGE AT MONITORING LOCATION			PHOTO
			50% Capacity	70% Capacity	100% Capacity	
4	Permanente Creek at Rancho San Antonio Park	Spilling into Rancho San Antonio Basin with weir overtopped	7.0'-8.0'	8.0'-9.0'	9.0'-10.0'	
<p>Disclaimer: The flooding thresholds in this table are based on hydraulic modeling results calibrated with data collected during the historical flood events. Hydraulic modeling results may be preliminary and should be used for general analysis purposes. Information is accurate within the model limitations and assumptions/data used for model development. For the most current information go to: https://alert.valleywater.org/?p=map&disc=f. Use care while interpreting results.</p>						

APPENDIX A Permanente & Hale Creeks (continued)



**FIGURE 8A
 Hale Creek Flooding 8.0' at Magdalena Avenue**

APPENDIX A Permanente & Hale Creeks (continued)



**FIGURE 9A
 Hale Creek Flooding 9.5" at Magdalena Avenue**

APPENDIX A **Permanente & Hale Creeks (continued)**

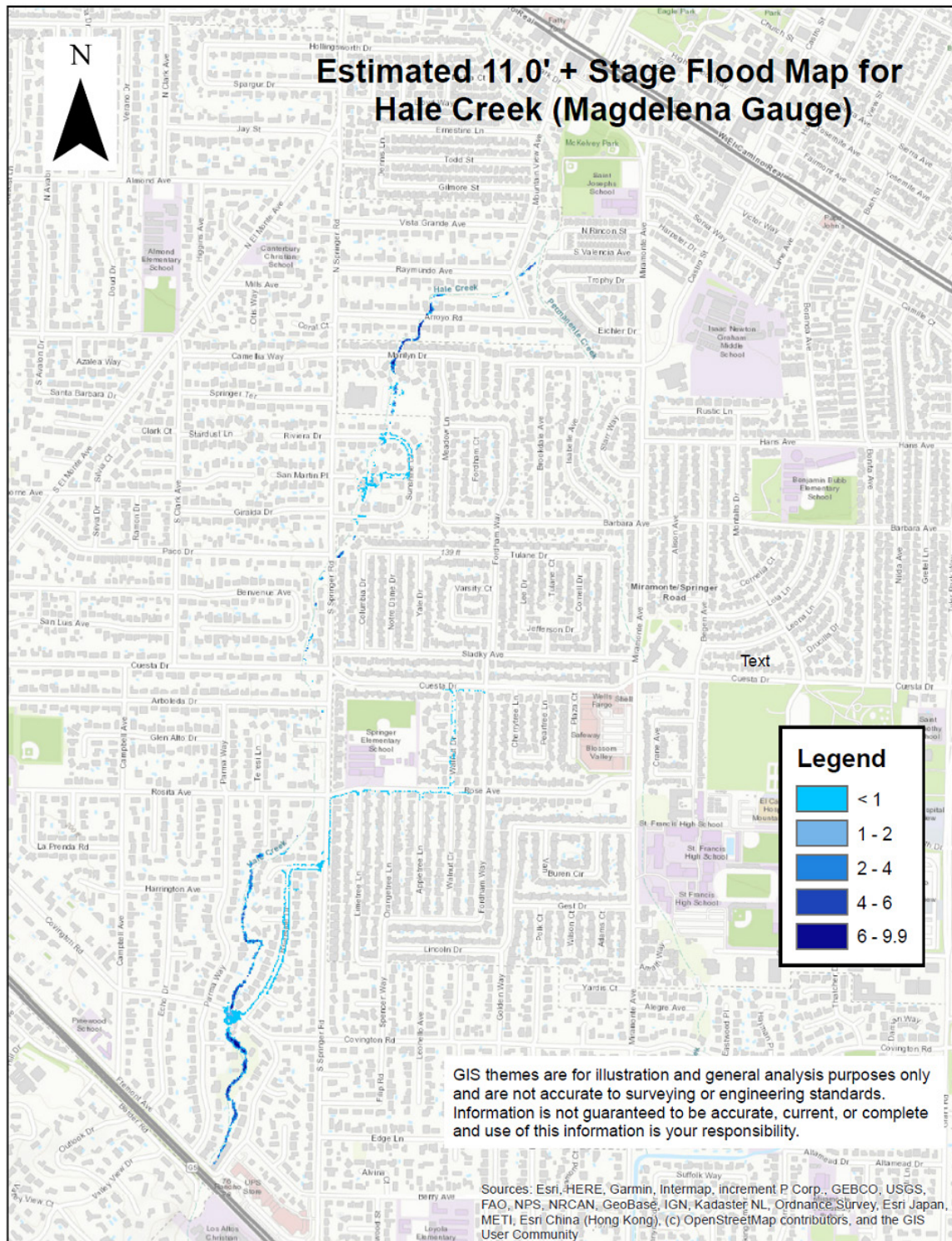
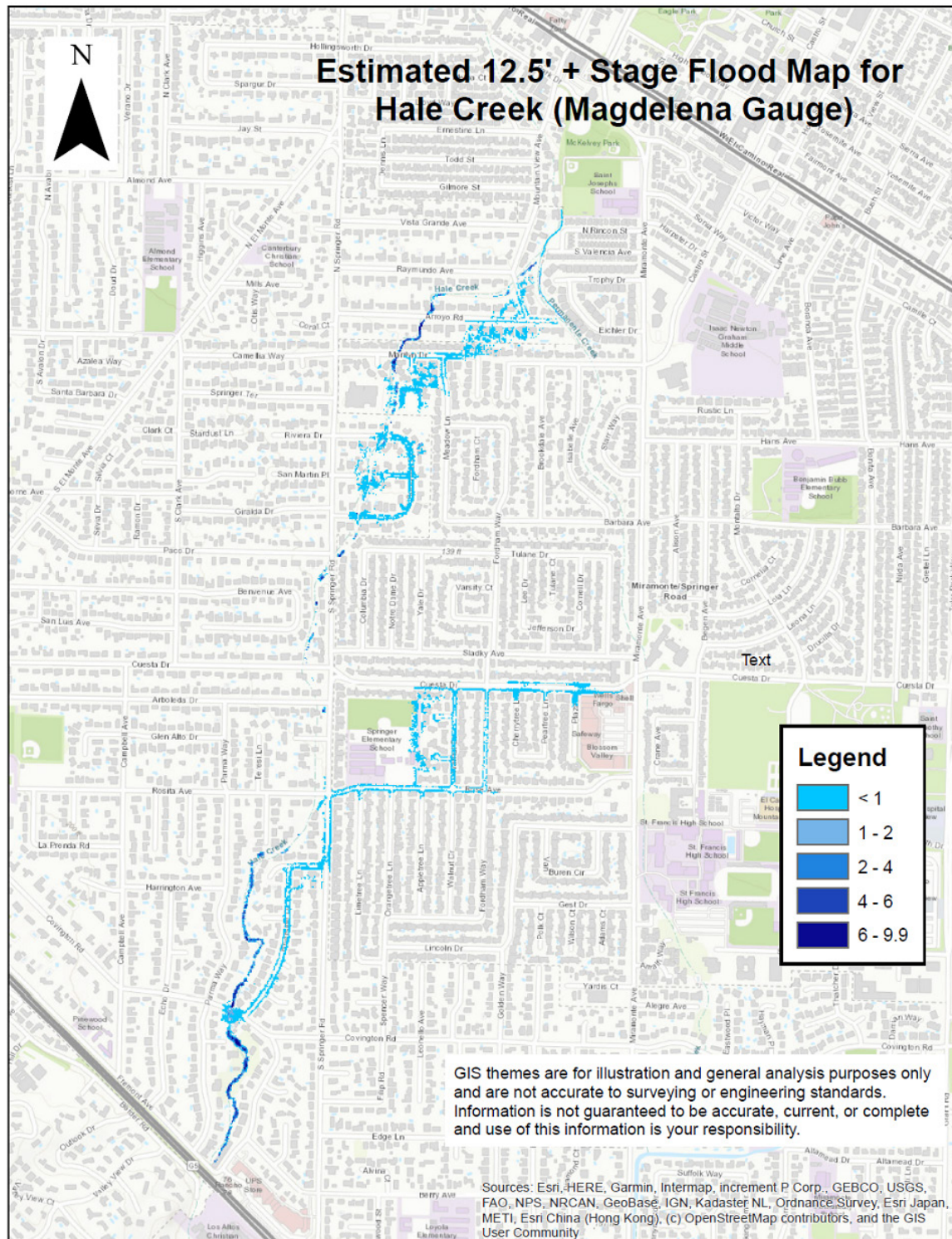


FIGURE 10A
Hale Creek Flooding 11.0' at Magdalena Avenue

APPENDIX A Permanente & Hale Creeks (continued)



**FIGURE 11A
 Hale Creek Flooding 12.5' at Magdalena Avenue**

APPENDIX A **Permanente & Hale Creeks (continued)**

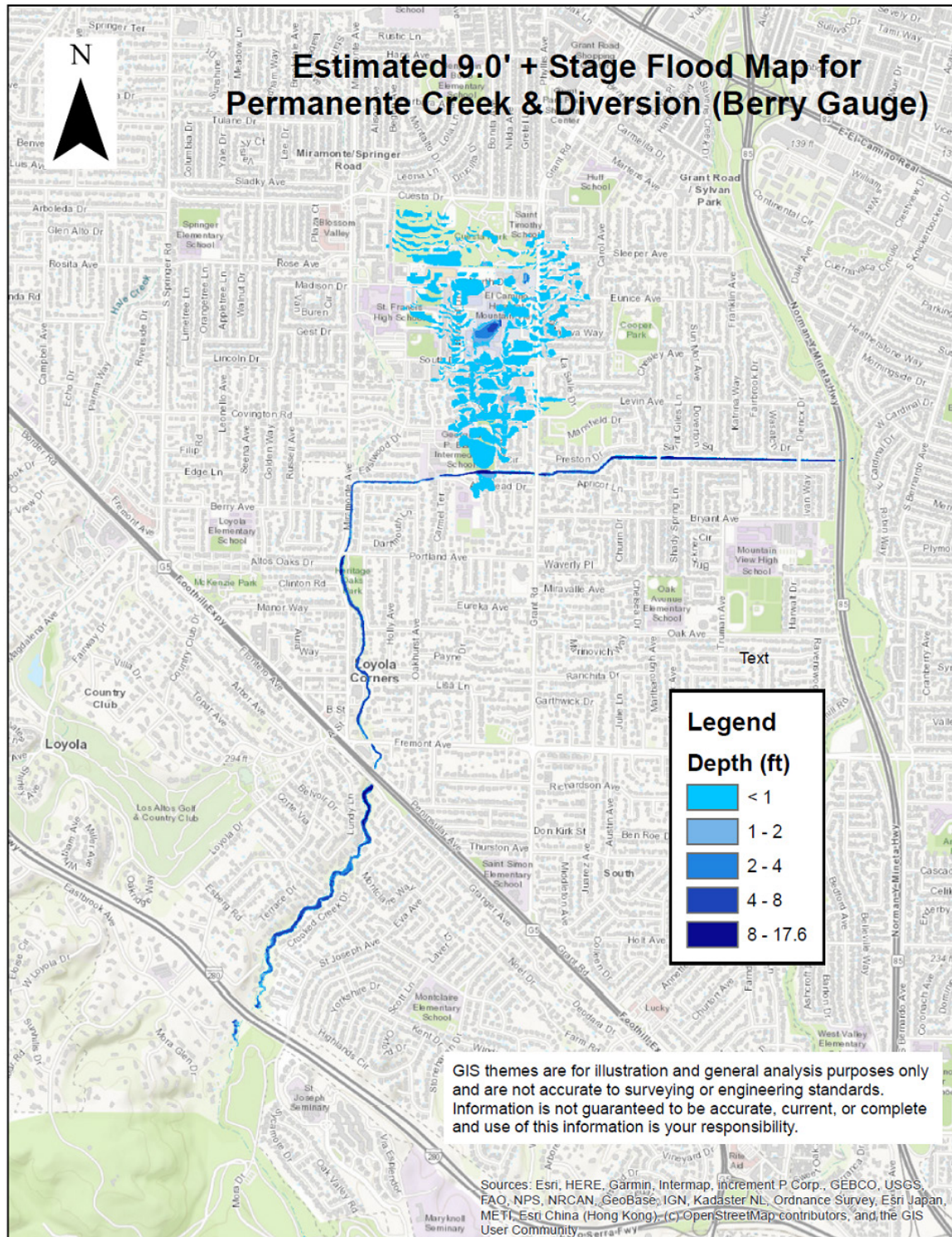


FIGURE 12A
Permanente Creek Flooding 9.0' at Berry Avenue

APPENDIX A **Permanente & Hale Creeks (continued)**

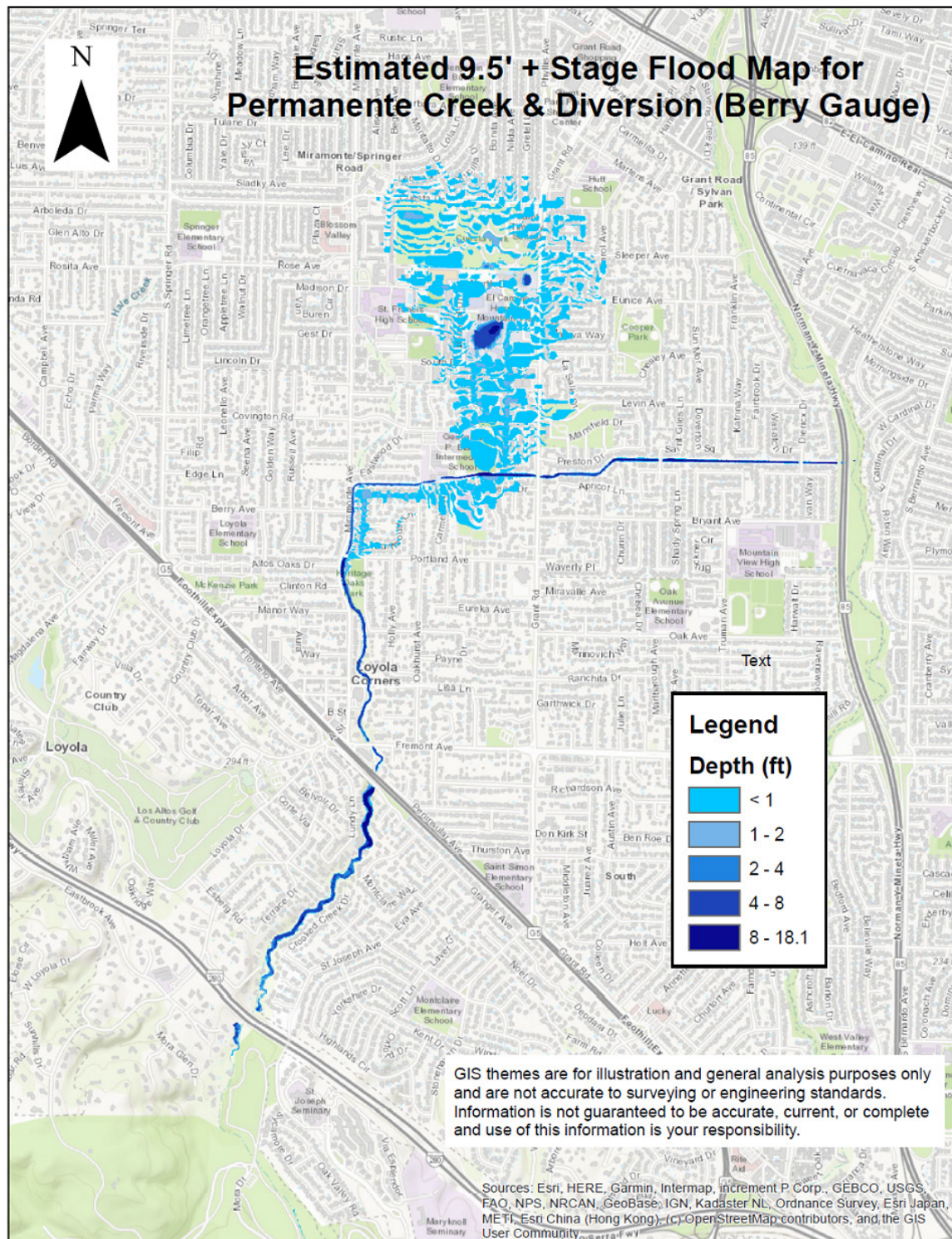


FIGURE 13A
Permanente Creek Flooding 9.5' at Berry Avenue

APPENDIX A

Permanente & Hale Creeks (continued)

F. ACTIVITIES AND NOTIFICATIONS

General activities and actions are described in Concept of Operations – [Table 3](#) and [Attachments 3 through 8](#) of the EAP. General notifications are described in EAP Mobilization – [Step 3](#) of the EAP. The general level of activity and notifications will be guided by the best information available to the EAP Personnel. The level of activity may mirror those activities of the individual jurisdictional Emergency Operations Centers (EOCs).

The general activities in [Table 3](#) and [Attachments 3 through 8](#) of the EAP sufficiently cover activities needed for Permanente and Hale Creeks. However, the proper function of the system relies on 3 detention basins and a diversion channel, so a few activities should be emphasized. Below is a list that supplements the Progressive Responsibilities for a few activities based on the flood condition level.

PREPAREDNESS (Green)

- Valley Water O&M will conduct field inspections of the creek, diversion structure for the Rancho San Antonio (RSA) detention basin, gravity drainage structure for the RSA detention basin, diversion structure at the Permanente Creek Diversion, and the pump at the McKelvey Park detention basin.
- Valley Water O&M will perform mitigation work on all facilities to assure they will function prior to a storm event including the pump at McKelvey Park detention basin.
- Valley Water WFOU will inventory and procure flood fighting materials and equipment including a portable pump that could be used at McKelvey Park detention basin to evacuate any water stored in the facility in the event of a pump failure.

WATCH (Yellow) & WARNING (Red)

- Valley Water WFOU will inspect and clean Trash Racks, Bridge Piers, Tide Gates and Detention Facilities.
- Valley Water WFOU will stage equipment at localities likely to be affected as needed. This may include portable pumps if needed at detention basins.

Permanente Creek and Hale Creek flows through the cities below and may pose a threat to any of them; it poses the greatest flood threat to the City of Mountain View. Contact information for the cities and other Agency Stakeholders is included as [Attachment 9](#) of the EAP.

- Town of Los Altos Hills
- City of Los Altos
- City of Mountain View

APPENDIX A
Permanente & Hale Creeks (continued)

There are important infrastructure and facilities at risk of flooding from Permanente Creek. Based on intelligence gathered during the storm event, the EOC and other stakeholders will determine the risk and provide notifications as appropriate. In general, a City Stakeholder would provide notifications to critical facilities at risk.

Below is a list of some important facilities that may be at risk. If needed and available, more detailed flood maps may be provided to City Stakeholders by Valley Water's Hydrology, Hydraulics and Geomorphology Unit to better determine which facilities are threatened:

FACILITY TYPE	NAME	ADDRESS	PHONE
SCHOOLS & COMMUNITY CENTERS	Georgina P. Blach Intermediate School	1120 Covington Road Los Altos, CA 94024	(650) 934-3800
	Miramonte Christian School	1175 Altamead Drive Los Altos, CA 94024	(650) 927-2783
	Crittenden Middle School	1701 Rock Street Mountain View, CA 94043	(650) 903-6945
	McKelvey Park	1101 Park Drive Mountain View, CA 94040	(408) 626-3404
MEDICAL	El Camino Hospital	2500 Grant Road Mountain View, CA 94040	(650) 988-7614 (650) 772-6560
FIRE STATION	Mountain View Fire Station No. 2	160 Cuesta Drive Mountain View, CA 94040	(650) 903-6365

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APPENDIX B

San Francisquito Creek

A. PURPOSE

This Appendix to the Emergency Action Plan for Severe Storms and Flooding in Lower Peninsula Watershed (EAP) is meant to provide additional guidance specific to San Francisquito Creek. There is also a separate San Francisquito Creek Multi-Agency Coordination Operations Plan for Severe Storm and Flood Response (SFC MAC) that was prepared and adopted by the San Francisquito Creek Joint Power Authority (SFCJPA) and their member agencies. This appendix should be sufficient for use during severe storms or flooding, however, if the focus of the event is on the San Francisquito Creek or its watershed and a MAC is activated, it is recommended that the SFC MAC also be utilized.

B. SAN FRANCISQUITO CREEK DESCRIPTION

The San Francisquito Creek watershed is approximately 45 square miles in extent and forms the boundary between Santa Clara and San Mateo Counties. The creek meanders through the cities of Palo Alto, Menlo Park, and East Palo Alto and provides some of the best habitat for steelhead and other sensitive species on the Lower San Francisco Peninsula. [Figure 1B](#) is a location map of the creek and shows the three primary reaches of the creek that are currently part of the Flood Protection Study: (1) San Francisco Bay to Highway 101; (2a-g) Highway 101 to Interstate 280; and (3) Interstate 280 to Searsville Dam.

Downstream of Highway 101, the creek can generally be characterized as a modified trapezoidal channel with levees and maintenance roads with adequate maintenance access. The creek upstream of Highway 101 is an earthen unimproved heavily incised channel with homes and roads immediately adjacent to the top bank.

Most of the creek downstream of Sand Hill Road is owned by adjacent property owners with Valley Water holding some easements at various creek locations that allow for maintenance to protect the community from flood threats. However, the adjacent land uses make maintenance access difficult requiring work be done from adjacent roadways or through private property. Valley Water ownership of the creek is shown in [Figures 2B](#) and [3B](#) and can also be viewed at <https://gis.valleywater.org/scvwd/>, which would be the most current information. Stanford University owns a significant amount of property on the creek (primarily upstream of Sand Hill Road) and in the watershed, which includes maintaining and operating several reservoirs.

There are several stream gauges on the creek and tributaries with the USGS gauge on San Francisquito Creek providing the most reliable information that will be used for forecasting before and during storm events. The flow of record at this gauge was 7,200 cubic-feet per second (cfs) and occurred in 1998. A hydrology study completed December 2016 has established that the 100-year design flow rates are:

- USGS gauge – 7,640 cfs;
- Chaucer Street bridge – 8,150 cfs; and
- Highway 101 – 8,410 cfs.

APPENDIX B

San Francisquito Creek (continued)

Below is a more detailed description of the creek reaches.

- San Francisco Bay to U.S. Hwy 101 (Reach 1):
 - A 1.5-mile earthen channel with levees and a floodwall
 - Four bridge crossings (one Bay Trail pedestrian bridge, and a concrete culvert at U.S. Hwy 101 that extends beneath East Bayshore Rd, Highway 101, and West Bayshore Rd)
 - A very flat channel slope of 0.05%
 - Daily tidal influence
- U.S. Hwy 101 to Newell Road (Reach 2a):
 - A 0.6-mile open channel that has been heavily encroached upon by urban residential development
 - An 84% hardscape channel lining (e.g., sacked-concrete, concrete walls, rock slope protection)
 - A 1,000-foot long floodwall extending upstream from U.S. Hwy 101 in Santa Clara County that is predominantly sacked concrete on the west side and concrete wall on the east side.
 - Two channel constrictions to flow or “bottle-necks”
 - One bridge crossing at Newell Rd with abutments located in the channel
 - One potential fish passage barrier (concrete cover) located near Clarke Avenue
 - A flat slope of 0.2%
 - Daily tidal influence
- Newell Road to University Avenue (Reach 2b):
 - A 0.4-mile open channel flowing adjacent to Woodland Avenue that has been heavily encroached upon by urban residential development
 - A 62% hardscape channel lining
 - One bridge crossing at University Ave with abutments located in the channel
 - A flat slope of 0.1%

APPENDIX B

San Francisquito Creek (continued)

- University Avenue to Chaucer Street (Reach 2c):
 - A 0.8-mile open channel flowing adjacent to Woodland Avenue that has been heavily encroached upon by urban residential development
 - A 49% hardscape channel lining
 - One bridge crossing with a culvert at Chaucer Street that is a **major constriction** and two private pedestrian bridges
 - A flat slope of 0.2%
 - A residence that is situated below top of bank
- Chaucer Street to Middlefield Road (Reach 2d):
 - A 0.9-mile open channel that has been heavily encroached upon by urban residential development and is also constrained by Palo Alto Avenue and Woodland Avenue
 - A 24% hardscape channel lining
 - One bridge crossing with a culvert at Middlefield Rd is a **major constriction** to the flow.
 - A flat slope of 0.3%
- Middlefield Road to El Camino Real (Reach 2e):
 - A 1.0-mile open channel flowing adjacent to Palo Alto Avenue that has been heavily encroached upon by urban residential development
 - An 11% hardscape channel lining
 - One bridge crossing with abutments located in the channel at El Camino Real, one pedestrian bridge at Willow Pl, and one Cal Train bridge just downstream of El Camino Real
 - One fish passage barrier at the El Camino Real crossing (bridge apron)
 - A flat slope of 0.3%
- El Camino Real to Sand Hill Road (Reach 2f):
 - Open channel that has urban residential development along the top of bank
 - About 20% hardscape channel lining

APPENDIX B

San Francisquito Creek (continued)

- One bridge crossing at Sand Hill Road and one pedestrian bridge crossing at San Mateo Dr
- A flat slope of 0.5%
- Numerous creek bank erosion sites
- Sand Hill Road to Interstate 280 (Reach 2g):
 - Open channel that runs through Stanford University Golf Course and residential areas that have at times encroached upon the creek banks
 - Nine bridge crossings including:
 - Junipero Serra Blvd
 - Piers Ln
 - Alpine Rd
 - Northbound I-280
 - Southbound I-280
 - 2 Bike/Pedestrian
 - 2 Golf Cart/Pedestrian serving Stanford Golf Course
 - Three fish passage barriers:
 - approximately 300 feet downstream from Junipero Serra Blvd. (golf cart crossing)
 - approximately 300 feet upstream from Junipero Serra Blvd. (USGS gage weir)
 - approximately 300 feet downstream from the confluence with Los Trancos Creek (Denil fish ladder)
 - Hardscape channel lining is undetermined but expected to be no more than 2%
 - A flat slope of 0.6%
- Interstate 280 to Searsville Dam:
 - Open channel that has urban residential development along some of the top of bank up to Alpine Road
 - Hardscape channel lining is expected to be no more than 2%
 - Searsville Dam is a fish passage barrier
 - A flat slope of 0.6%

APPENDIX B
San Francisquito Creek (continued)

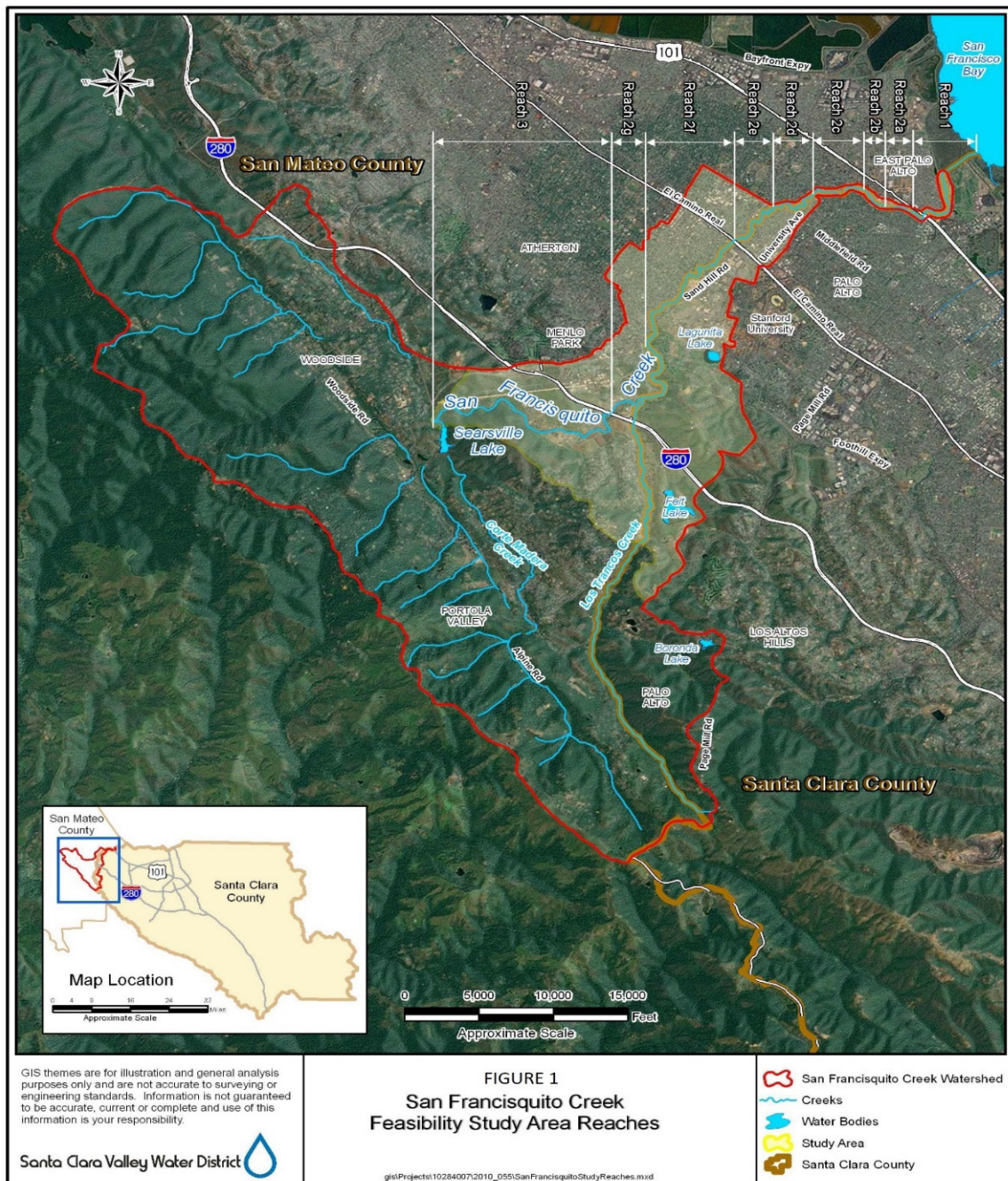


FIGURE 1B
San Francisquito Creek Reaches

APPENDIX B
San Francisquito Creek (continued)

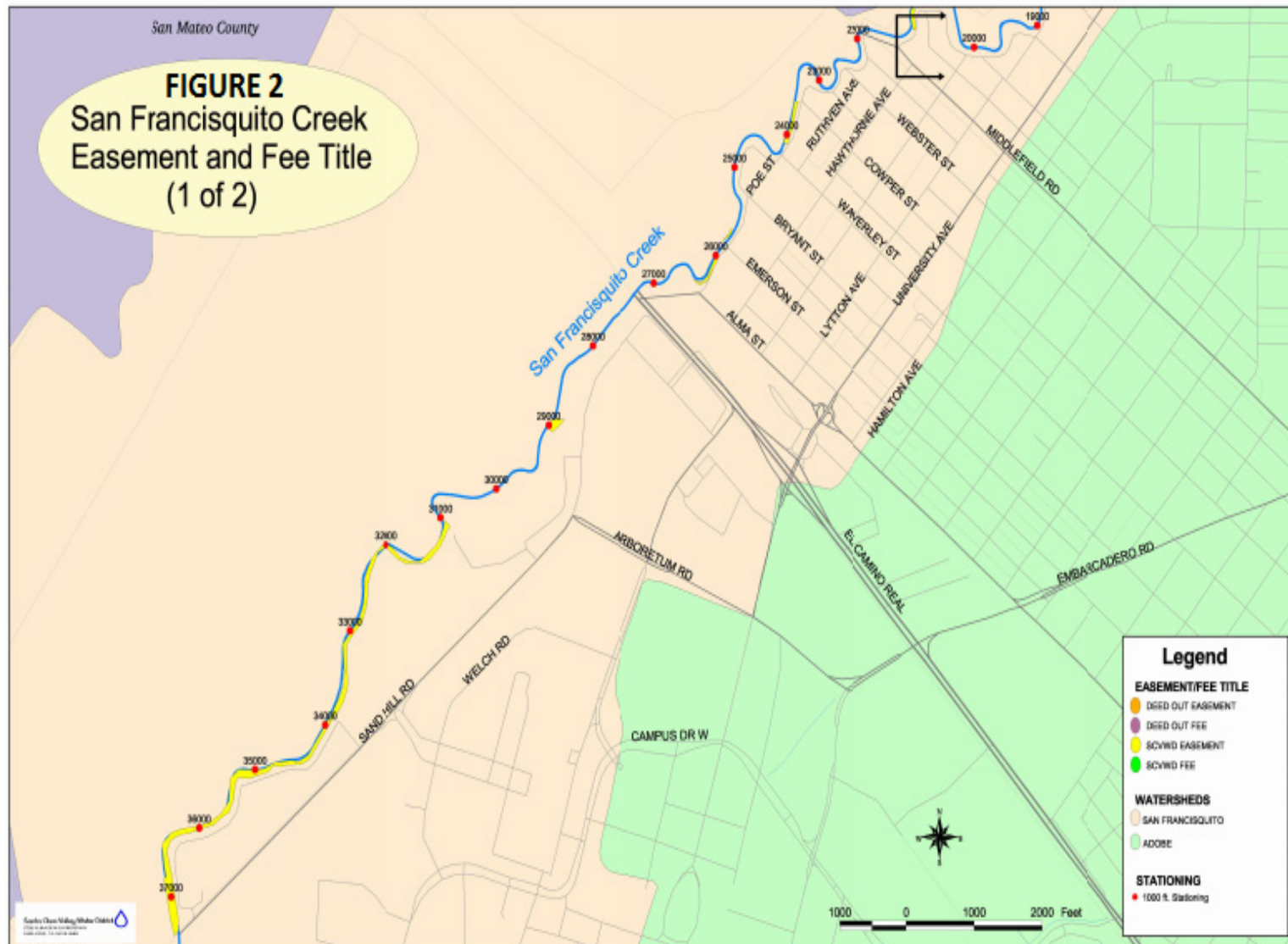


FIGURE 2B
San Francisquito Creek Right of Way (1 of 2)

APPENDIX B
San Francisco Creek (continued)

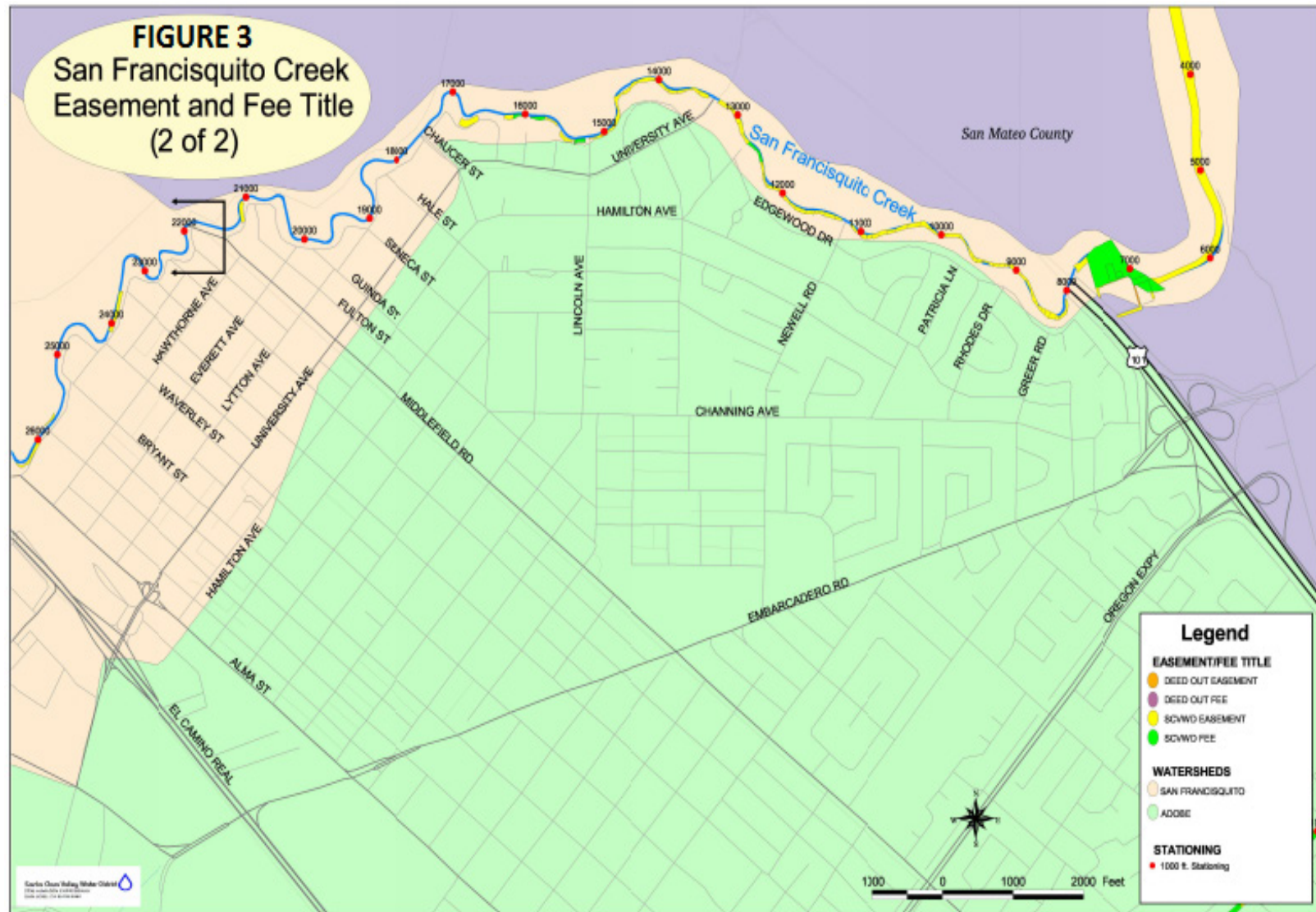


FIGURE 3B
San Francisco Creek Right of Way (2 of 2)

APPENDIX B San Francisquito Creek (continued)

C. SAN FRANCISQUITO CREEK FLOOD THREATS

Flooding threats exist along the lower reaches of San Francisquito Creek from the Bay to the Middlefield Road bridge. While the two primary types of flooding in these areas are tidal and riverine (fluvial) flooding, unexpected emergency events can occur at almost any location due to the nature of the creek (e.g., many large trees, steep erosive banks, levees/floodwalls, and urban encroachment).

With the completion of a flood protection project downstream of Highway 101, the remaining fluvial flooding hotspots are upstream of Middlefield Road, at Chaucer Street bridge, University Avenue, and near Newell Road. [Figure 4B](#) shows the remaining flood threats during a 100-year flood.

Flooding has occurred many times in the past and is generally documented in a report published by Valley Water that can be accessed on their website at <https://www.valleywater.org/floodready/flood-reports>. The most significant recent flooding events on San Francisquito Creek occurred in 1998 and 2012.

- In 1998, San Francisquito Creek overtopped its banks at numerous locations flooding about 1,700 cfs: upstream of the Middlefield Road bridge, at Seneca Street and Palo Alto Avenue, upstream of Chaucer Street bridge, downstream of Highway 101, at the golf course, and at Palm Street. More than 400 homes flooded, 325 people were evacuated in the City of East Palo Alto and Highway 101 was closed.
- In 2012, water spilled over the levee between Verbena Drive and Daphne Way, University Avenue, and Woodland Avenue. Levees on both sides of the creek downstream of East Bayshore Road also suffered minor failures as water seeped through the levees causing soil to boil at multiple locations on the outboard levee faces. The flood condition resulted in the closure of northbound Highway 101 and evacuation of residents.

The facilities below are within the area where people, property, and infrastructure may be at risk and, if needed, more detailed flood maps are available from Valley Water's Hydrology, Hydraulics and Geomorphology Unit to determine how they are threatened:

FACILITY TYPE	NAME	ADDRESS	PHONE
SCHOOL	Duveneck Elementary	705 Alester Avenue Palo Alto	SFC MAC or Local Agency to contact (650) 322-5946
	Emerson School Palo Alto	2800 W. Bayshore Road Palo Alto	SFC MAC or Local Agency to contact (650) 424-1267
	Mid-Peninsula High School	1340 Willow Road Menlo Park	SFC MAC or Local Agency to contact (650) 321-1991

APPENDIX B
San Francisquito Creek (continued)

FACILITY TYPE	NAME	ADDRESS	PHONE
SCHOOL	Ohlone Elementary	950 Amarillo Avenue Palo Alto	SFC MAC or Local Agency to contact (650) 856-1726
	Missing Girls Middle School	3400 West Bayshore Road, Palo Alto	SFC MAC or Local Agency to contact (650) 968-8338
	St. Elizabeth Seton	1095 Channing Avenue Palo Alto	SFC MAC or Local Agency to contact (650) 326-9004
HOSPITAL	Satellite Health Care	1040 Hamilton Court Menlo Park	SFC MAC or Local Agency to contact (650) 273-9951
FIRE STATION	Menlo Park Fire District Station #77	1467 Chilco Street Menlo Park	SFC MAC or Local Agency to contact (650) 688-8400/911

APPENDIX B
San Francisco Creek (continued)

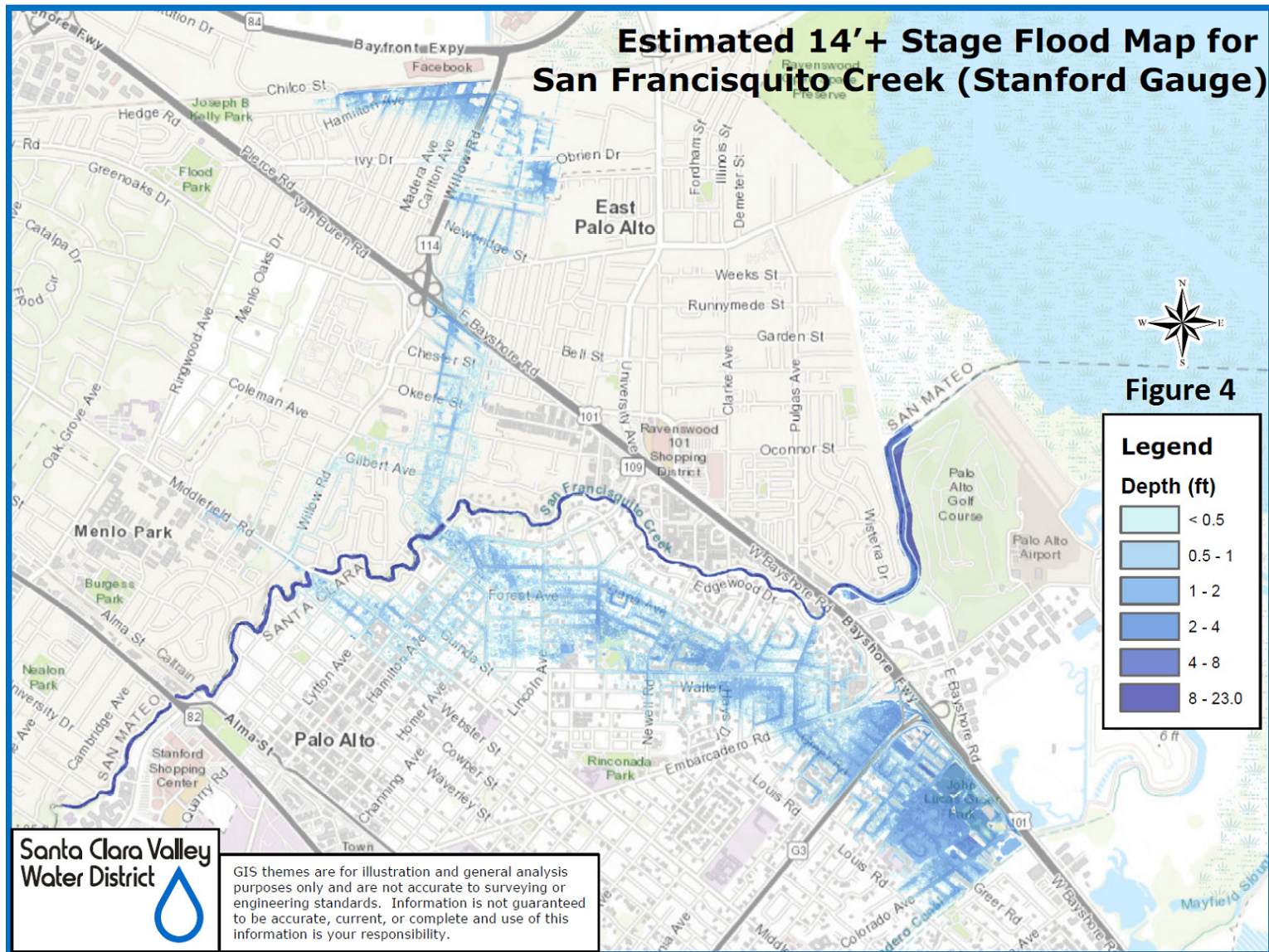


FIGURE 4B
San Francisco Creek Flood Map

APPENDIX B

San Francisquito Creek (continued)

D. FLOOD EVENT DETECTION

Several detection methods can be utilized on San Francisquito Creek that include weather forecasts, hydrologic/hydraulic modeling, Automated Local Evaluation in Real Time (ALERT) and other stream/reservoir/precipitation gauge systems, and field observations. Some of these are available through websites that are listed in [Attachment 13](#).

1. Weather Forecasts

The National Weather Service (NWS) provides weather (e.g., precipitation) forecasts in advance of a storm event and Valley Water contracts with a service provider for enhanced forecasting.

During storm events, the NWS will host webinars with affected agencies and utilities to discuss forecasts and share information to enhance regional preparedness. The Valley Water and many SFC MAC Stakeholders participate in these webinars and share all current information. In addition, the NWS maintains websites ([Attachment 13](#)) that provide forecasts and will issue public notices of forecasted flood threats on local television and radio programming.

2. Hydrologic/Hydraulic Modeling

Based on the weather forecast and other data, the NWS River Forecast Center utilizes computer modeling of the San Francisquito Creek watershed that predicts flood stage over 72 hours in advance. These models are considered estimates and can vary, sometimes significantly, from the actual flood flows. The forecasts can be found at <https://water.weather.gov/ahps2/hydrograph.php?wfo=mtr&gage=sfcc1>.

To improve the accuracy of the modeling, Valley Water coordinates with NWS to help review the computer model periodically and determine if additional information can be gathered to update the model. The typical type of information that can be used to update the models includes: surveys of channel geometry, reevaluation of channel roughness due to vegetation or blockages, and data gathered during high flow events.

The NWS will utilize this modeling to set their threat level, which is similar to the EAP condition levels, and provide the information to news organizations, local agencies and the public via their website. This same modeling and information on NWS threat levels is likely the primary method used by Valley Water in determining flood condition levels and flood severity levels for storm events.

3. Gauge System

A listing of all Valley Water gauges and the San Francisquito USGS gauge at Stanford University can be found at <https://alert.valleywater.org/?p=map>. The primary gauge used for detecting and classifying an event is the USGS gauge at Stanford. Valley Water's Automated Local Evaluation in Real Time (ALERT) system can set alarms to automatically notify appropriate staff at predetermined

APPENDIX B

San Francisquito Creek (continued)

stages. In addition, the City of Palo Alto maintains several gauges that can be found at <https://www.cityofpaloalto.org/Departments/Public-Works/Engineering-Services/Creek-Monitor-Cam> and their flood information and preparedness website found at <https://www.cityofpaloalto.org/Departments/Emergency-Services/Flood-Information-and-Winter-Storm-Preparedness>. The combination of these gauges provides data in near real-time for San Francisquito Creek and using the Stanford gauges can provide about an extra hour of warning to determine the level of threat for flooding.

4. Field Information Teams and Field Operations & Maintenance

As water levels increase in the creeks, rivers, and waterways, City of Palo Alto and Valley Water Field Information Teams (FITs) are deployed to visually monitor and report back to a DOC or EOC the rate of increase in areas of potential flooding. In addition, FITs can monitor facilities for potential damage, identify surface drainage issues, thoroughly document actual flooding, and report landslides/erosion affecting the adjacent land uses.

The City of Palo Alto, Valley Water and other SFC MAC Stakeholders have individual teams who deploy into the field to observe flood conditions at “hot spots.” Deployment of these teams should be coordinated between the City of Palo Alto and Valley Water. The HH&G master list of flooding hotspots to deploy FITs and other teams are shown in [Attachment 14](#) and include:

- Along Palo Alto Avenue – possible overtopping
- Upstream of Middlefield Road – overtopping
- Upstream of Chaucer Street Bridge – overtopping concern and visual stream gauge
- Upstream of University Avenue Bridge – high water causing potential flooding concern
- Upstream of Newell Road – overtopping
- Culvert at West Bayshore Road and Highway 101 – possible flooding of highway ([Palo Alto has a camera at this location](#)
<https://www.cityofpaloalto.org/Departments/Public-Works/Engineering-Services/Creek-Monitor-Cam>)

Field Operations and Maintenance personnel are also typically out in the field inspecting and repairing facilities during storm events. These personnel also provide intelligence back to their agencies regarding facility conditions and any storm related concerns.

In addition, the public may be helpful in reporting situations that may pose a flood threat. These are typically reported to Valley Water, City of Palo Alto, or SFCJPA who should promptly relay to the DOC/EOC.

APPENDIX B

San Francisquito Creek (continued)

All together the intent of these observations is to cover the following:

- a. Visual stream gauge at Chaucer St. – check for high water and rate of change
- b. Known Flood Hot-Spots
- c. Real-time Flooding – report and document flooding
- d. Bridge Piers – check for debris blockages
- e. Trash Racks – check for debris blockages
- f. Levee downstream of Highway 101 – check for damage and stability
- g. Sandbag sites – check for supply and access issues
- h. Previously repaired or other project sites – check for performance
- i. Bank Stability – check for threats to adjacent land uses

E. SAN FRANCISQUITO CREEK CONDITION LEVELS AND SEVERITY DETERMINATION

Step 1: Evaluation

After detecting and gathering adequate intelligence regarding the situation, an evaluation of the waterway conditions must be performed by appropriate personnel. The personnel involved will generally be one or more Subject Matter Experts (SME) that will generally include staff from O&M and HH&G.

Step 2: Classification

The EAP is always active, however, after detection of an unusual event occurs the operational level may be changed. Based on a technical evaluation of the intelligence detected, an operational level, which are generally described in [Table 1B](#), will be established by an appropriate level of personnel, such as an Agency Representative. [Tables 2B](#) and [3B](#) provide more specific flood threshold information for San Francisquito Creek to use as guidance in establishing a condition levels and [Attachment 1](#) provides additional guidance for other conditions that could occur during high flows.

APPENDIX B
San Francisquito Creek (continued)

TABLE 1B
Flood Condition Levels

Green	<p>Preparedness—This is the base stage of readiness that will be the typical condition throughout most of the year. It is defined as:</p> <ul style="list-style-type: none"> • Flood stage (Minor Flooding or greater) or 90% to 100% of Design stage is not estimated within the next 72 hours; or • Measured stream depth is below 70% of Flood stage or Design stage.
Yellow	<p>Monitoring—This condition is variable and requires more intense monitoring and a heightened level of alertness. Minimal staff in each Stakeholder's Emergency Operations Center (EOC) may be activated. A virtual MAC could be activated. An informal EOC Action Plan (AP) could be initiated if activated. This condition is defined as:</p> <ul style="list-style-type: none"> • Stream depth is estimated to reach Flood stage or 90%-100% of Design stage in 72 hours or more; or • Measured stream depth is at 50% to 70% of Flood stage or 70% to 90% of Design stage; or • For areas that are controlled purely by storm drain runoff (flashy systems), the stream depth is estimated to reach Flood stage or near Design stage within 24 hours.
Orange	<p>Watch—The Stakeholders' would increase staff in their EOCs, if they had been activated, and a MAC facility could also be established. If activated, a formal EOC AP will be drafted. This condition is defined as:</p> <ul style="list-style-type: none"> • Stream depth is estimated to reach Flood Stage or greater than Design stage within 24 to 72 hours; or • Measured stream depths are at 70% to 100% of Flood stage; or • Measured stream depths are at 90% to 100% of Design stage; or • For areas that are controlled purely by storm drain runoff (flashy systems), the stream depth is estimated to reach Flood stage or greater than Design stage within 6-12 hours.
Red	<p>Warning—This is a more urgent situation. The Stakeholders' EOC may be activated along with a MAC that would monitor the situation, providing notifications and responding according to a written AP. Often for smaller watersheds with flashy creeks, an EOC or MAC will not be opened until the storm event is occurring. This condition is defined as:</p> <ul style="list-style-type: none"> • Flood stage or greater than Design stage or is occurring or is estimated to occur within 24 hours; or • Measured stream depths are 100% or greater than Flood stage; or • Measured stream depths are greater than Design stage; or • For areas that are controlled purely by storm drain runoff (flashy systems), the stream depth is estimated to reach Flood stage or greater than Design stage within minutes/hours or is occurring.
<p>Note: Design stage is the depth of water that a facility design is based upon and Flood stage is the depth of water at which a stream or facility begins flooding (see Glossary of Terms).</p>	

APPENDIX B

San Francisquito Creek (continued)

Below is an example:

EXAMPLE:




Situation – A Valley Water FIT has reported that the water surface upstream of Chaucer Street is at 20' on the staff gauge and appears to be rising. USGS gauge at Stanford is at a height of 12.5 feet. HH&G is also forecasting that, based on the weather forecast and watershed condition, depth of flow will continue to increase and peak at or near 21' sometime in the next 8 hours at Chaucer Street.

Response – Condition level of **Warning** (Red) for a severity of **Moderate Flooding** (Red) should be established since: (1) The water level is already near 100% capacity at Chaucer St ([Table 2B](#)) and is forecast continue to rise to 21' within the next 8 hours; and (2) Moderate Flooding ([Table 3B](#)) is likely based on a 12.5 foot depth at Stanford gauge with the likely potential that it may rise.

Flooding is very possible at Chaucer Street and upstream of Middlefield that could flow overland towards Highway 101. Activities should be taken as listed in [Table 3](#) (pages 15-19), but for more specific activities and coordination you may want to refer to the SFC MAC.

APPENDIX B
San Francisquito Creek (continued)

TABLE 2B
San Francisquito Creek Flood On-Site Monitoring Thresholds

LOCATION	FLOODING DESCRIPTION	FLOOD THREAT STAGE AT MONITORING LOCATION*			PHOTO/CROSS SECTION
		50% Capacity	70% Capacity	100% Capacity	
West Bayshore Road	Overtopping occurring 1000 feet upstream near the Woodland – West Bayshore Intersection along the East Palo Alto bank.	9.5'-10.5'	11'-12'	13'-14'	 W. Bayshore Rd.
Chaucer Street	Overtopping both banks and flowing overland towards Highway 101. Flood flows can cross Highway 101 in Menlo Park.	12.5'-13.5'	17.5'-18.5'	20.5'-21.5'	
Near Waverley Street upstream of Middlefield	Overtopping at Middlefield Road Bridge primarily flowing overland towards Palo Alto with some minor flooding in Menlo Park.	12'-13'	16'-17'	21'-22'	

*Note: Monitoring thresholds above are preliminary and need to still be verified by survey to ensure assumptions are correct. 1998 Flood high water mark at Chaucer St. also needs to be verified.

APPENDIX B
San Francisquito Creek (continued)

TABLE 3B
Stanford University Gauge Flood Severity Thresholds (NWS Model)

USGS Stanford Gauge Thresholds	Stage (ft)	Description*
Action	9.5	<ul style="list-style-type: none"> Possible flood could occur near Chaucer Street Bridge or due to stream blockages.
Minor Flooding	11	<ul style="list-style-type: none"> Chaucer Street Bridge begins to overtop at the upstream face.
Moderate Flooding	13	<ul style="list-style-type: none"> Flooding begins upstream of Middlefield Road, sheet flowing in both Palo Alto and Menlo Park, eventually comingling with spill from Chaucer Bridge. Significant flooding is occurring from Chaucer Street Bridge bounded by Louis Road and Highway 101. Menlo Park floodwaters begin ponding along Highway 101. Flooding is possible near Newell Road Bridge.
Historical High Water	13.6	<ul style="list-style-type: none"> February 1998
Major Flooding	14	<ul style="list-style-type: none"> Disastrous flooding continues to flow towards San Francisco Bay. Palo Alto floodwaters flow towards Matadero Creek, bounded by Louis Road and Highway 101. Menlo Park spills flow northward along Highway 101, spilling over highway south of Marsh Road.

*Note: The Hydrology, Hydraulics and Geomorphology Unit and the NWS have flood **inundation** maps for each of the stages that can be shared with the stakeholders as needed for planning actions, such as street closures and evacuations.

Step 3: Notification and Communication

After the condition levels and severity have been determined, appropriately communicating the situation to responsible agencies, staff, and other identified individuals and groups is critical. Depending on the condition level, responsibilities for notifications and who is notified would vary. Often during a monitoring condition, the Emergency Operation Center would not be open or only minimally staffed and the SFC MAC may not yet be activated, however, Valley Water's DOC, SMEs and/or ACs may be very active. Valley Water's list of entities that may be provided information or notifications of the condition level and flood severity could include:

- Internal Valley Water staff
- SFC MAC
- City of Palo Alto
- County of Santa Clara Office of Emergency Management (OEM)
- County of San Mateo Office of Emergency Services
- SFCJPA

APPENDIX B
San Francisquito Creek (continued)

- Valley Water Elected Officials
- Critical Facilities, such as, Schools, Hospitals, governmental facilities or Businesses
- Public (Generally Valley Water is in a support role during events)
- Impacted businesses and residents (Valley Water is in a support role)

In addition, the condition level and severity should be reflected on the Valley Water website which should strive to be consistent with website information and public notifications provided by the City of Palo Alto, SFCJPA and NWS. The following are facilities within the area where people, property, and infrastructure may be at risk and, if needed, should be notified.

FACILITY TYPE	NAME	ADDRESS	PHONE
SCHOOL	Duveneck Elementary	705 Alester Avenue Palo Alto	SFC MAC or Local Agency to contact (650) 322-5946
	Emerson School Palo Alto	2800 W. Bayshore Road Palo Alto	SFC MAC or Local Agency to contact (650) 424-1267
	Mid-Peninsula High School	1340 Willow Road Menlo Park	SFC MAC or Local Agency to contact (650) 321-1991
	Ohlone Elementary	950 Amarillo Avenue Palo Alto	SFC MAC or Local Agency to contact (650) 856-1726
	Missing Girls Middle School	3400 West Bayshore Road, Palo Alto	SFC MAC or Local Agency to contact (650) 968-8338
	St. Elizabeth Seton	1095 Channing Avenue Palo Alto	SFC MAC or Local Agency to contact (650) 326-9004
HOSPITAL	Satellite Health Care	1040 Hamilton Court Menlo Park	SFC MAC or Local Agency to contact (650) 273-9951
FIRE STATION	Menlo Park Fire District Station #77	1467 Chilco Street Menlo Park	SFC MAC or Local Agency to contact (650) 688-8400/911

APPENDIX C

Palo Alto Flood Basin

A. PURPOSE

This Appendix to the Emergency Action Plan for Severe Storms and Flooding in Lower Peninsula Watershed (EAP) is meant to provide additional guidance specific to the Palo Alto Flood Basin. It will not duplicate information already in an Emergency Operations Plan or the EAP but will provide specific information and guidance for the Palo Alto Flood Basin.

B. PALO ALTO FLOOD BASIN DESCRIPTION

The 600-acre Palo Alto Flood Basin (Basin) and Tide Control Structure was constructed in 1956 to protect the areas upstream of Highway 101 from high tides in Matadero, Adobe, and Barron Creeks. The Palo Alto Flood Basin drains into San Francisco Bay by gravity through fifteen five by five-foot Valley Water tide gates and one City of Palo Alto sluice gate located at the north end of the basin. The basin will drain when the elevation of the water in the basin is higher than the water in the Bay. The tide gates do not allow saltwater to flow back into the basin. Thus, it is generally “low-tide” within the flood basin, except during and immediately after floods and for other management purposes.

The Tide Gate Structure has 2 telemetered level indicators, one on the flood basin side and the other on the bay side, that are monitored by the City of Palo Alto and can be viewed at http://www.cityofpaloalto.org/gov/depts/pwd/creek_monitor/creek_monitor_only.asp. The tide gate structure was built and maintained by Valley Water and the sluice gates and level indicators are operated by the City of Palo Alto Rangers at the Baylands Nature Preserve. The Rangers operate the sluice gate to ensure that the water levels in the flood basin do not exceed -2.2 ft. in the winter and -2.0 ft. in the summer. The Rangers allow tidal water to enter the flood basin to support habitat and wildlife while ensuring that water levels do not create mosquito habitat or flood protection concerns.

APPENDIX C
Palo Alto Flood Basin (continued)



Looking north, Highway 101 on left, flood basin right other side of levee.



Looking south at Matadero Creek towards Adobe Creek and Highway 101.

APPENDIX C
Palo Alto Flood Basin (continued)



Looking east towards the Bay along Matadero Creek.



Looking east at the Tide Gates with the Bay in background.

APPENDIX C

Palo Alto Flood Basin (continued)

C. PALO ALTO FLOOD BASIN FLOOD DESCRIPTION & FLOODING HISTORY

The flood basin is equipped with tide gates built and maintained by Valley Water and operated to let water out of the basin whenever the tide is lower than the water surface inside the basin. The gates close to prevent water from flowing back into the basin when the tide is higher than the water level in the basin. Thus, the basin provides a place to store flood waters until tide levels drop low enough to permit their discharge to San Francisco Bay.

If a flood due to a storm event were to occur at the same time as high tide, water might be forced out of the channels and/or over levees or embankments and cross Highway 101. Flooding would occur in low lying portions of Palo Alto and the highway would likely be closed to traffic. Valley Water has identified the following potential flooding areas:

- East of Highway 101 from Adobe Creek to San Francisquito Creek
- West of Highway 101 from Embarcadero Road to Adobe Creek and about halfway to Middlefield Road

See [Figure 1C](#) for a map of the watersheds and flood area and [Figure 2C](#) for a more detailed map of FEMA flooding areas that are likely to flood in future events followed by a description of historical flooding. Because of its age and maintenance needs, the current tide gate structure is scheduled to be replaced, with construction anticipated to begin in late 2023. And given concerns about current and future flood threats due to sea level rise, the facility is included as an objective of Economic Impact Area 2 (EIA2) in the San Francisco Bay Shoreline Study that is being done in partnership with the US Army Corps of Engineers, Valley Water (funded by Safe, Clean Water and Natural Flood Protection under project E7), California State Coastal Conservancy, and regional stakeholders. This study estimates that approximately 800 structures are at risk and damages would exceed \$350 million in EIA2.

APPENDIX C Palo Alto Flood Basin (continued)

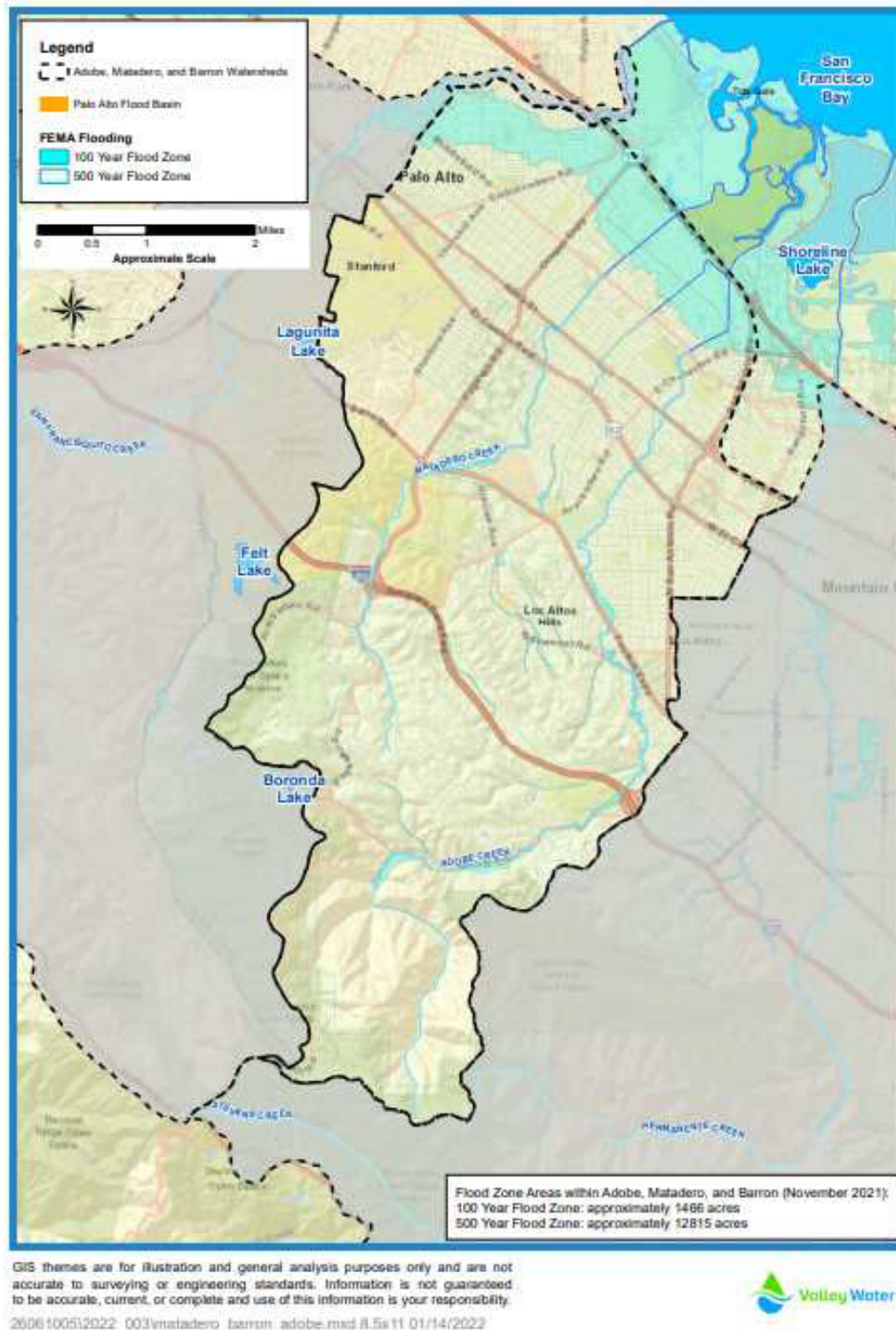
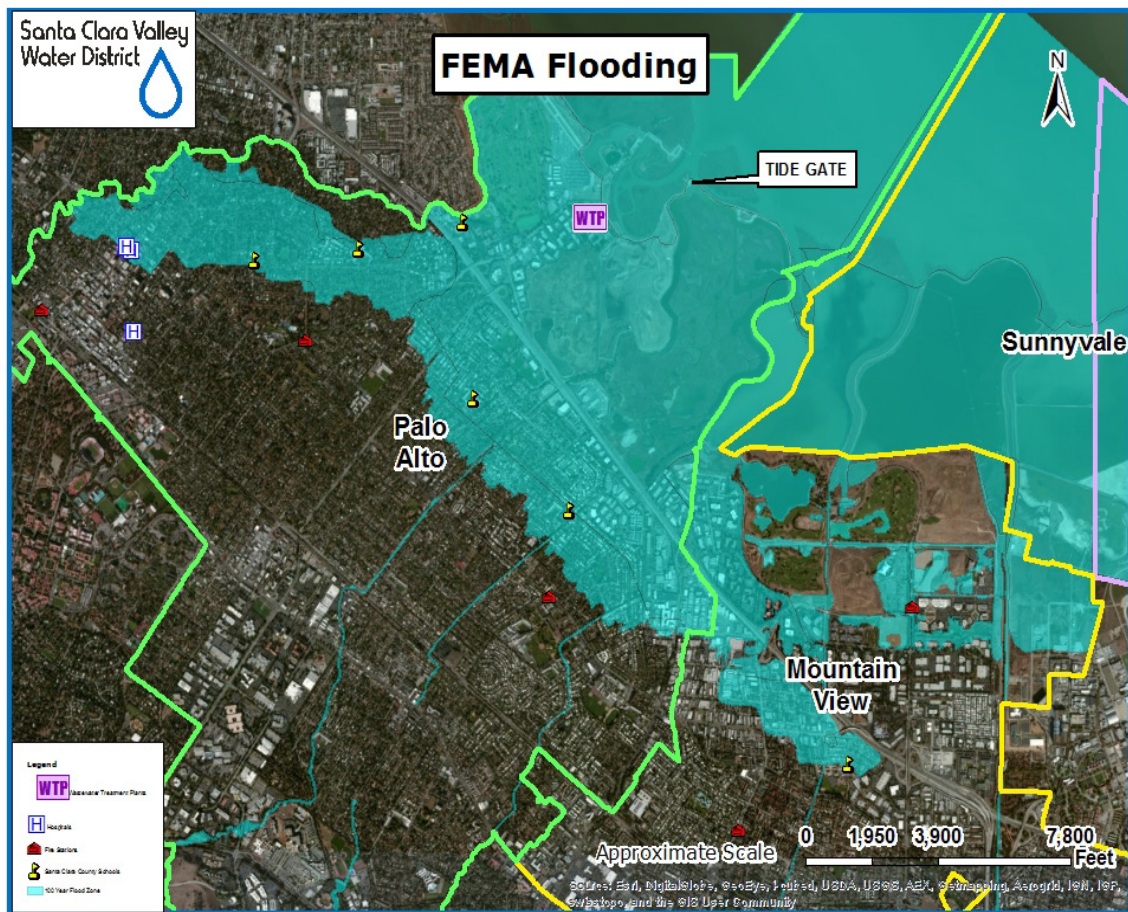


FIGURE 1C
Adobe, Matadero, and Barron Creek Watersheds and FEMA Floodplain

APPENDIX C Palo Alto Flood Basin (continued)



**FIGURE 2C
FEMA Flooding**

Flooding History

Adobe:

- **1955:** Overflowing culverts flooded 101; flooding of 73 acres of residential property and 45 acres of agricultural land occurred; major portion of damages occurred in and around 101.
- **1967:** High flows caused backing up of street drainage in Palo Alto leading to flooded streets and front yards.

Barron:

- **1967:** High flows caused backing up of street drainage in Palo Alto leading to flooded streets and front yards.

APPENDIX C

Palo Alto Flood Basin (continued)

Matadero:

- **1955:** Flooded culverts west of 101 caused 3 in. of water above the highway's pavement; the overflow rejoined the creek around the railroad.
- **1967:** Overflow on Greer Rd (approx. ¼ mile upstream 101); 1ft of freeboard in channel; likely caused by inadequate storage capacity in Palo Alto Flood Basin; high flows caused backing up of street drainage in Palo Alto leading to flooded streets and front yards.

D. FLOOD EVENT DETECTION

Several detection methods can be utilized for Permanente and Hale Creeks including weather forecasts, hydrologic/hydraulic modeling, Automated Local Evaluation in Real Time (ALERT), other stream/precipitation gauge systems, and field observations. Some of these are available through websites listed in [Attachment 13](#).

1. Weather Forecasts

The National Weather Service (NWS) provides weather (e.g., precipitation) forecasts in advance of a storm events. Valley Water also contracts with a service provider for enhanced forecasting in the regional area.

During storm events, the NWS will host webinars with affected agencies and utilities to discuss forecasts and share information to enhance regional preparedness. The Valley Water and Agency Stakeholders can participate in these webinars and share all current information. In addition, the NWS maintains websites ([Attachment 13](#)) that provide flood threat information and they will issue public notices of forecasted flood threats on local television and radio programming if the level of threat is high.

2. Hydrologic/Hydraulic Modeling

Based on the weather forecast, tsunami warnings, and other real-time data, Valley Water may utilize computer modeling of Matadero Creek, Adobe Creek, Palo Alto Flood Basin operations and tide information to predict flood stage up to 72 hours in advance. These models are not run operationally and are performed on an ad hoc basis. Outputs are considered estimates and can vary, sometimes significantly, from the actual flood flows or tide/wave elevations.

To improve the accuracy of the modeling, Valley Water will review the computer model periodically and determine if additional information can be gathered to update the model. The type of information that can be used to update the models include: surveys of channel geometry, reevaluation of channel roughness due to vegetation or blockages, and data gathered during high flow events.

APPENDIX C

Palo Alto Flood Basin (continued)

Valley Water and NWS will utilize this modeling to help set their flood condition level for the flood basin (Table 1C) and provide the information to local agencies and the public as appropriate. And, this same modeling and information that helps determine flood threat levels is used by Valley Water in determining flood severity levels for Palo Alto Flood Basin (Table 2C) during storm events.

3. Gauge System

Stream gauges provide valuable information for high flow events and may give notice to take action or to deploy staff for field observations. Gauges may be both visual and remote sensing Automated Local Evaluation in Real Time (ALERT). ALERT gauges are set with alarms to automatically notify appropriate staff at specific stages.

All ALERT gauges can be found at <https://alert.valleywater.org/?p=map>. These gauges provide data in near real-time for the Palo Alto Flood Basin.

4. Field Information Teams and Field Operations & Maintenance

As water levels increase in the creeks, rivers, and waterways, Valley Water Field Information Teams (FITs) are deployed to visually monitor and report back to a DOC or EOC the water levels in areas of potential flooding. In addition, FITs can monitor facilities for potential damage, identify surface drainage issues, thoroughly document actual flooding, and report landslides/erosion affecting the adjacent land uses.

Valley Water and, in some cases other Stakeholders, have individual teams who deploy into the field to observe flood conditions at “hot spots.” Deployment of these teams may be coordinated if there are more than one team in the same area. HH&G maintains a master list of flooding hotspots and monitoring locations (Attachment 14) to deploy FITs and other teams in the Lower Peninsula Watershed. However, this may expand to additional areas during events depending on conditions.

Field Operations & Maintenance utilizes FITs and their other personnel who are typically out in the field inspecting, repairing, and removing debris from facilities during storm events that would include the Tide Gates for the Palo Alto Flood Basin. FITs and these other personnel provide intelligence back to their Valley Water regarding facility conditions and any storm related concerns.

In addition, the public may be helpful in reporting situations that may pose a flood threat. These are typically reported to Valley Water, City Stakeholders or other Agency Stakeholders who should promptly relay to the DOC/EOC or to Valley Water through a contact method shown below:

- Main Valley Water telephone – (408) 265-2600
- After hours telephone – (408) 395-9309

APPENDIX C

Palo Alto Flood Basin (continued)

- Valley Water website report problems – <https://www.valleywater.org/> or <https://access.valleywater.org/s/>.
- Non-Emergency Police & Fire dispatch – 311
- Emergency Police & Fire dispatch – 911

All together the intent of these observations is to cover the following:

- a. Visual stream gauges – check for high water and rate of change
- b. Known Flood Hot-Spots
- c. Real-time Flooding – report and document flooding
- d. Bridge Piers – check for debris blockages
- e. Trash Racks – check for debris blockages
- f. Levees and Floodwalls – check for damage and stability
- g. Sandbag sites – check for supply and access issues
- h. Previously repaired or other project sites – check for performance
- i. Bank Stability – check for threats to adjacent land uses

E. PALO ALTO FLOOD BASIN FLOOD CONDITION LEVELS AND SEVERITY DETERMINATION

Weather forecasting, tsunami wave forecasts and modeling often provides an ability to estimate flood events before they occur. This is extremely valuable when preparing for necessary evacuations and road closures.

To provide this advanced notice, a threat level should be used to provide an indicator of preparedness for a response and a level of potential severity for areas subject to flooding to assist the Agency's in planning and implementing appropriate actions. Modeling in the future is filled with uncertainties, therefore, a condition of Watch will be used when flood stage is estimated about 24 to 72 hours or more in the future. If flooding is estimated within about 24 hours, the threat level will be elevated to Warning.

APPENDIX C
Palo Alto Flood Basin (continued)

TABLE 1C
Flood Condition Levels

Preparedness (Green)	<p>This is the base stage of readiness that will be the typical condition throughout most of the year. It is defined as:</p> <ul style="list-style-type: none"> • Flood stage (Minor Flooding or greater) or 90% to 100% of Design Flow stage is not estimated within the next 72 hours; or • Measured stream depth is below 50% of flood or 70% of Design Flow stage. <p>For Palo Alto Flood Basin without inflows from the creeks, the water surface elevation would be less than 3.3 feet. When there is creek flow into the basin, the initial water surface elevation for the basin is shown in the table at the top of Figure 3C.</p>
Monitoring (Yellow)	<p>This condition is variable and requires more intense monitoring and a heightened level of alertness. Minimal staff in the Emergency Operations Center (EOC) or in Watersheds Departmental Operations Center (DOC) may be activated. An informal EOC/DOC Action Plan (AP) could be initiated. This condition is defined as:</p> <ul style="list-style-type: none"> • Stream depth is estimated to reach flood or 90%-100% of Design Flow stage in 72 hours or more; or • Measured stream depth is at 50% to 70% of flood or 70% to 90% of Design Flow stage; or • For areas that are controlled purely by storm drain runoff (flashy systems), the stream depth is estimated to reach flood or near Design Flow stage within 24 hours. <p>For Palo Alto Flood Basin without inflows from the creeks, the water surface elevation would be 3.3 feet to 5.3 feet. When there is creek flow into the basin, the initial water surface elevation for the basin is shown in the table at the top of Figure 3C.</p>
Watch (Orange)	<p>The EOC/DOC may be opened if not already operating. A formal EOC/DOC AP may be drafted if they are active. This condition would be set if:</p> <ul style="list-style-type: none"> • Stream depth is estimated to reach flood or greater than Design Flow stage within 24 to 72 hours; or • Measured stream depths are at 70% to 100% of flood stage; or • Measured stream depths are at 90% to 100% of Design Flow stage; or • For areas that are controlled purely by storm drain runoff (flashy systems), the stream depth is estimated to reach flood or greater than Design Flow stage within 6-12 hours. <p>For Palo Alto Flood Basin without inflows from the creeks, the water surface elevation would be 5.3 feet to 6.3 feet. When there is creek flow into the basin, the initial water surface elevation for the basin is shown in the table at the top of Figure 3C.</p>
Warning (Red)	<p>The EOC will typically have been activated and would be closely monitoring the situation, providing notifications and responding according to a written AP. Often for smaller watersheds with flashy creeks, an EOC may not be opened until the storm event is occurring.</p> <ul style="list-style-type: none"> • Flood stage or greater than Design Flow stage is occurring or is estimated to occur within 24 hours; or • Measured stream depths are 100% or greater than flood stage; or • Measured stream depths are greater than Design Flow stage; or

APPENDIX C

Palo Alto Flood Basin (continued)

	<ul style="list-style-type: none"> For areas that are controlled purely by storm drain runoff (flashy systems), the stream depth is estimated to reach flood or greater than Design Flow stage within minutes/hours or is occurring. <p>For Palo Alto Flood Basin without inflows from the creeks, the water surface elevation would be 6.3 feet to 7.4 feet. When there is creek flow into the basin, the initial water surface elevation for the basin is shown in the table at the top of Figure 3C.</p>
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When the threat level is at a Watch or Warning, there is an expectation that flooding will occur or is occurring at some locations. The severity of the situation at specific locations is determined by the flood stage. The areas subject to flooding for different stream stages are estimated utilizing hydraulic models and flood maps prepared by the Hydrology, Hydraulics and Geomorphology Unit (HH&G).

Flood severity categories (shown in [Figure 3C](#)) are defined by Valley Water and the NWS as:

TABLE 2C
Palo Alto Flood Basin Flood Severity Levels

Action (Yellow)	<p>An established gauge height which when reached by a rising stream, lake, or reservoir represents the level where action is taken in preparation for possible significant hydrologic activity. See table on Figure 3C for help in setting threat level.</p> <ul style="list-style-type: none"> Palo Alto Flood Basin is from 3.4 feet to 5.0 feet depending on the stage in Adobe and Matadero Creek.
Minor Flooding (Orange)	<p>Minimal or no property damage, but possibly some public threat (e.g., inundation of roads). See table on Figure 3C for help in setting threat level.</p> <ul style="list-style-type: none"> Palo Alto Flood Basin is from 5.3 feet to 6.1 feet depending on the stage in Adobe and Matadero Creek.
Moderate Flooding (Red)	<p>Some inundation of structures and roads near stream, evacuations of people and/or transfer of property to higher elevations. See table on Figure 3C for help in setting threat level for Palo Alto Flood Basin.</p> <ul style="list-style-type: none"> Palo Alto Flood Basin is from 6.4 feet to 7.2 feet depending on the stage in Adobe and Matadero Creek. Area flooded (shown on Figure 3C) includes: <ul style="list-style-type: none"> East Bayshore Road from Adobe Creek to Oregon Expressway, City of Palo Alto Corporation Yard, Commercial and Industrial land uses along Embarcadero east of Highway 101, and Palo Alto Regional Wastewater Control Plant.
Major Flooding (Purple)	<p>Extensive inundation of structures and roads, significant evacuations of people and/or transfer of property to higher elevations. See table on Figure 3C for help in setting threat level for Palo Alto Flood Basin.</p> <ul style="list-style-type: none"> Palo Alto Flood Basin is from 6.4 feet to 7.2 feet depending on the stage in Adobe and Matadero Creek. Area flooded (shown on Figure 3C) includes: <ul style="list-style-type: none"> Highway 101 and East Bayshore Road from Adobe Creek to Embarcadero Road, City of Palo Alto Corporation Yard, Commercial and Industrial land uses along Embarcadero east of Highway 101, Palo Alto Regional Wastewater Control Plant, Baylands Golf Course, and Land Uses west of Highway 101 as shown on Figure 3C.

APPENDIX C **Palo Alto Flood Basin (continued)**

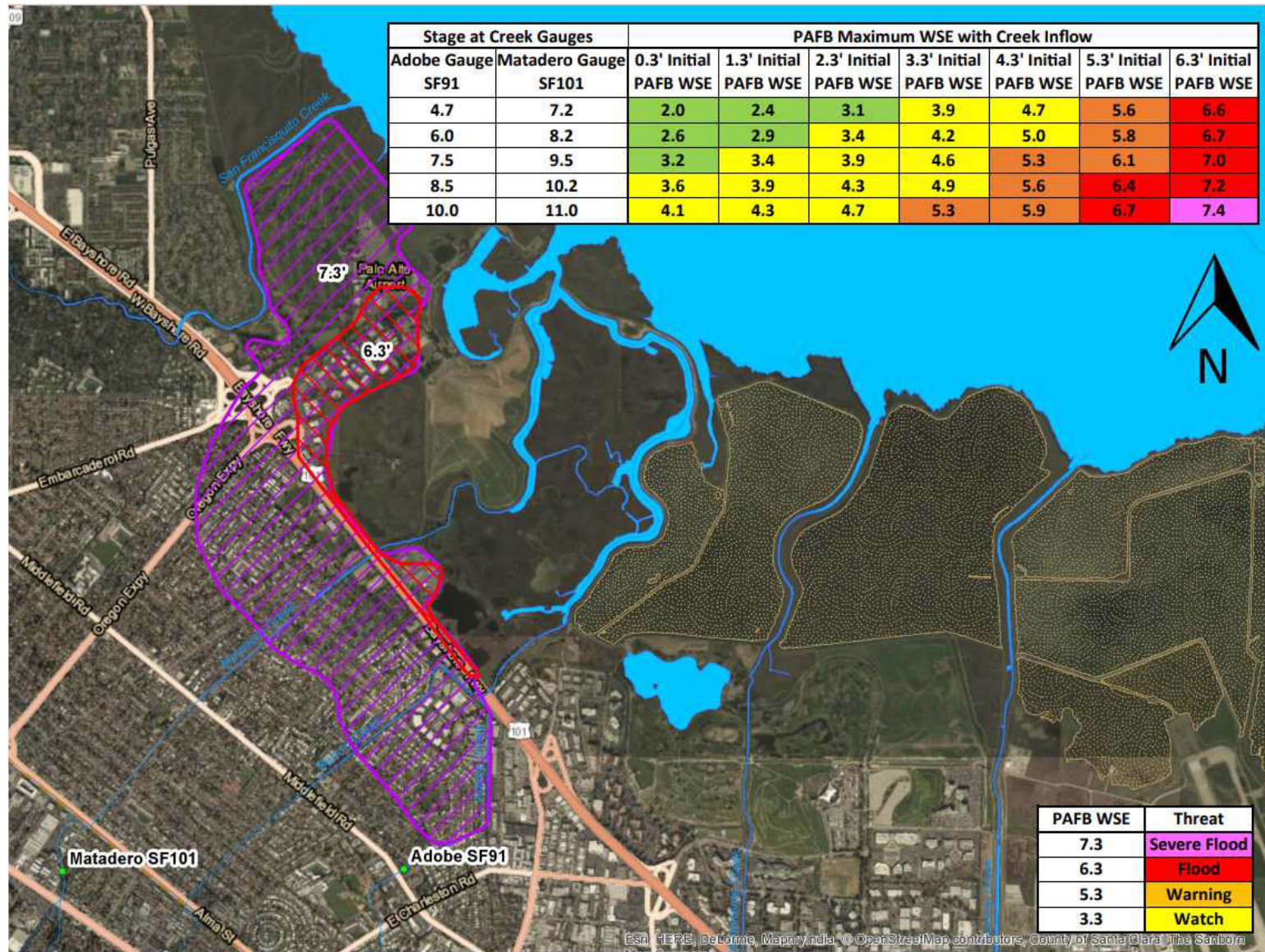


FIGURE 3C
Palo Alto Flood Basin Flood Severity Map

APPENDIX C

Palo Alto Flood Basin (continued)

F. ACTIVITIES AND NOTIFICATIONS

General activities and actions are described in Concept of Operations – [Table 3](#) and [Attachments 3 through 8](#) of the EAP. General notifications are described in EAP Mobilization – [Step 3](#) of the EAP. The general level of activity and notifications will be guided by the best information available to the EAP Personnel. The level of activity may mirror those activities of the individual jurisdictional Emergency Operations Centers (EOCs).

The general activities in [Table 3](#) and [Attachments 3 through 8](#) of the EAP sufficiently cover activities needed for Palo Alto Flood Basin. However, the proper function of the system relies on the function of the tide gates to the San Francisco Bay, so a few activities should be emphasized. Below is a list that supplements the Progressive Responsibilities for a few activities based on the flood condition level.

PREPAREDNESS (Green)

- Valley Water O&M will conduct field inspections of the tide gates annually prior to and as needed during raining season.
- Valley Water O&M will perform maintenance work on all facilities, as necessary, to assure they will function prior to a storm event.

WATCH (Yellow) & WARNING (Red)

- Valley Water WFOU will inspect and clean Trash Racks, Bridge Piers, Tide Gates and Detention Facilities.

The Palo Alto Flood Basin is located in the City of Palo Alto and poses a significant threat to Caltrans property (Highway 101) in the event of flooding. Contact information for the City of Palo Alto, Caltrans and other Agency Stakeholders is included as [Attachment 9](#) of the EAP.

There are other important infrastructure and facilities at risk of flooding from Palo Alto Flood Basin. Based on intelligence gathered during the storm event, the EOC and other stakeholders will determine the risk and provide notifications as appropriate. In general, a City Stakeholder would provide notifications to critical facilities at risk.

APPENDIX C
Palo Alto Flood Basin (continued)

Below is a list of some important school facilities that may be at risk. If needed and available, more detailed flood maps may be provided to City Stakeholders by Valley Water's Hydrology, Hydraulics and Geomorphology Unit to better determine which facilities are threatened:

FACILITY TYPE	NAME	ADDRESS	PHONE
SCHOOLS & COMMUNITY CENTERS	The Girls Middle School	3400 W. Bayshore Road Palo Alto, CA 94303	(650) 968-8338
	Palo Verde Elementary School	3450 Louis Road Palo Alto, CA 94303	(650) 856-1672
	Ohlone Elementary School	950 Amarillo Avenue Palo Alto, CA 94303	(650) 856-1726
	Emerson School	2800 W. Bayshore Road Palo Alto, CA 94303	(650) 424-1267